

Hitchcock's
**Machine Tool
Blue Book**

SEPTEMBER, 1929

TWENTY-FOURTH YEAR

The Mark of Good
Tools for 54 Years



TRADE MARK
REG. U.S. PAT OFF.

The **CLEVELAND**

TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES

TWIST DRILL
COMPANY
CLEVELAND
NEW YORK-CHICAGO-MONTREAL
SAN FRANCISCO

MEET US AT The Greatest Machine Shop IN THE WORLD!

Booth 1 B5 West Annex

National Machine Tool Builders' Exposition
CLEVELAND, OHIO
Sept. 30 to Oct. 4

GRIDLEY

Latest 19" Multiple Spindle Bar Machine.
4" Multiple Chucking Machine.

ACME

9/16" Model "C" Standard Automatic Screw
Machine.

NAMCO

New Opening Threading Dies and Collapsing
Taps, with removable chasers.

POSITIVE

New Two-in-One Industrial Centrifuge.

THE NATIONAL ACME COMPANY

Cleveland, Ohio

Windsor, Vermont

New York

Detroit

Chicago

F. F. Barber Machinery Company, Ltd., Toronto

Sole Agent for Ontario

Agencies in Principal Foreign Countries

Hitchcock's
**Machine Tool
Blue Book**

**Selected
Circulation**

**25,000
Monthly**

SEPTEMBER, 1929

TWENTY-FOURTH YEAR

Wonderland—

Those who attend the National Machine Tool Builders' Exposition at Cleveland September 30th to October 4th will see spread before them a veritable panorama of the latest and best of "The Master Tools of Industry."

There are few executives, engineers or production specialists, or whoever they may be, whose knowledge is so complete that they cannot add another degree to their practical education at this Wonderland of latest applied mechanics, with its 16,000 tons of modern equipment in action.

The wheels of mechanical progress are turning rapidly. Nowhere will you find that progress more fully and practically typified than at the Cleveland Exposition. To those who are responsible for production and costs it will give a clearer idea of how to keep in the forefront of the procession.

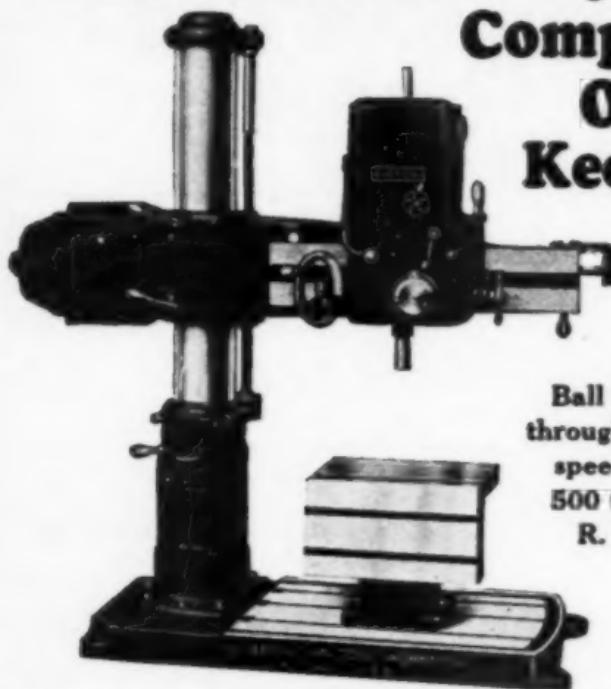
Published By

Hitchcock Publishing Co.

508 S. Dearborn St.,

Chicago, Ill.

"One is Known by the Company One Keeps"



Ball Bearing
throughout with
speeds from
500 to 2000
R. P. M.

The Automobile Industry and American Maxi-Speed Sensitive Radials

IN no industry is production so highly developed as in the automobile industry—and in no industry is the "AMERICAN" Sensitive Radial so widely used. Stutz, Buick, Hudson, Continental, International are just a few of the manufacturers using the "AMERICAN" to keep their production lines moving. Rapid, extremely accurate machine work is demanded by automotive engineers and they find the "AMERICAN"—with the range of a Radial and the speed of a Sensitive Drill—ideal for their purpose. You will, too.

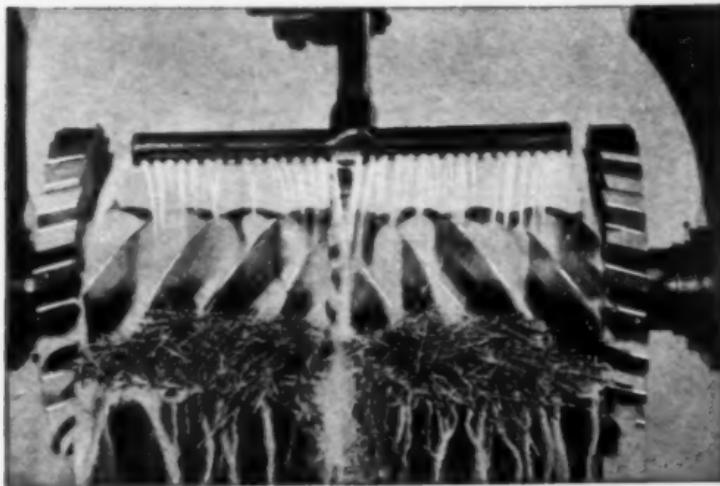
Write for Illustrated Folder giving Complete Details

The American Tool Works Company
Cincinnati, Ohio, U. S. A.

LATHES

RADIALS

SHAPERS



COSTS are KEPT DOWN by the REGULAR USE of BROWN & SHARPE CUTTERS

Manufacturers find that Brown & Sharpe Cutters require fewer sharpenings, and thus allow the machines to work more steadily.

Because of this, production increases,—more pieces are completed per set-up. The cost of the operation is consequently reduced, and the cost of labor, distributed over a larger number of pieces, is therefore less per piece. In addition, there is a decrease in sharpening costs and a longer cutter life because of the fewer sharpenings required.

Brown & Sharpe Cutters will give you the utmost cutter economy. Complete catalog sent upon request.

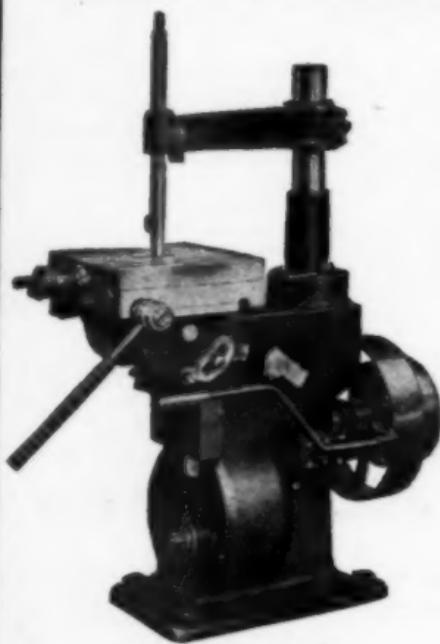
BROWN & SHARPE

BROWN & SHARPE MFG. CO.



PROVIDENCE, R. I., U. S. A.

BAKER KEYSEATERS



Built in
Five Sizes

Designed
for
Miscellaneous
Keyseating
and
Slotting

No. 0 KEYSEATER
Capacity 1" Wide—9" Maximum Stroke

*Exclusive advantages in securing Accuracy and
High Production are:*

1. Draw Stroke Drive.
2. Upper Support for Cutter Bar.
3. Tilting Table (for Taper Keyserts).
4. Simplicity in Operation.

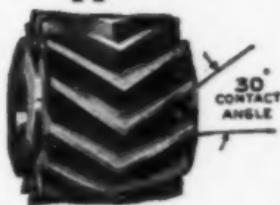
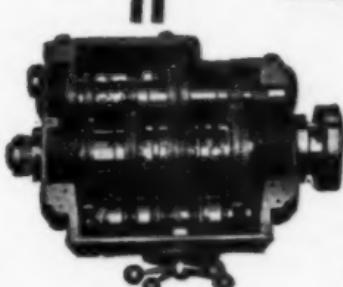
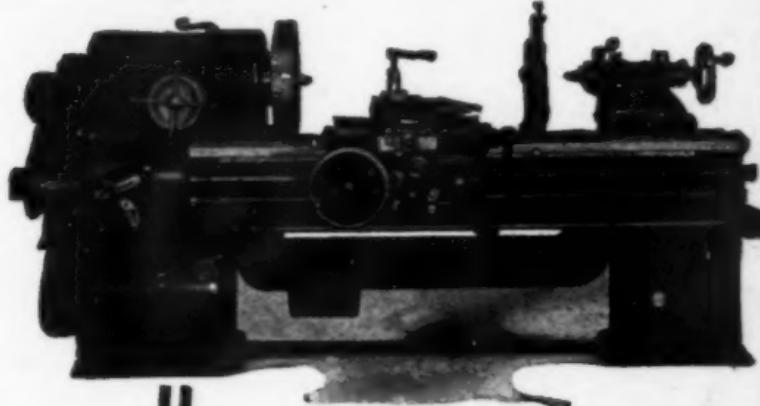
Write for Catalogue

BAKER BROTHERS, INC., Toledo, Ohio

*Builders of Boring, Drilling, Tapping,
Keyseating and Slotting Equipment.*



Monotrol



Encourages Production

MONOTROL'S ability to change spindle speeds with one lever saves two-thirds of the time for this operation. It encourages production with simplicity, convenience and speed to meet the requirements of modern industry.

Examine this headstock—note the strong herringbone gears. They are always in mesh and prevent all clashing of gears, stripping of teeth and chatter-marking work.

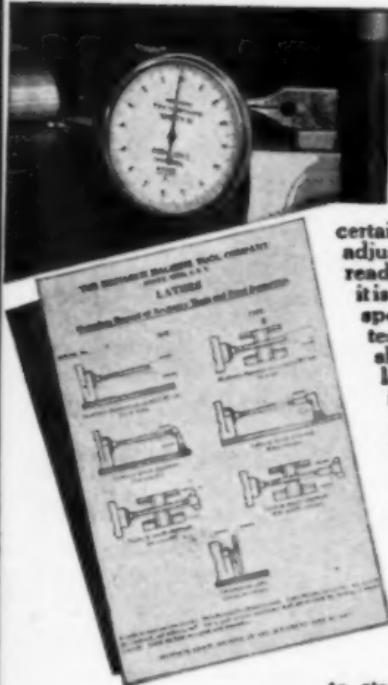
Whatever the work—if you are interested in greater efficiency, accuracy and long life investigate the Monotrol. Write today for complete data on this better lathe.

MONOTROL

The Sidney Machine Tool Co.
SIDNEY, OHIO

Another Reason for Choosing Monarch Lathes

Triple-Tested Accuracy



WHILE Monarch Lathes are being assembled, each part is carefully tested to make certain that it is accurate and in perfect adjustment. Then, when the lathe is ready to leave the assembly department, it is given *three* complete and final inspections! A record sheet of the last test is supplied to the purchaser. It shows the actual condition of the lathe at the time of shipment and is a guarantee of accuracy.

Alignment tests are carefully made. The limit of error allowed is .001". Test bars from 18" to 24" are used. Leadscrews are tested on the Harness Screw Thread Comparator made especially for this work. They are further tested for accuracy on a Zeiss lead-testing machine that records errors of .0001".

Two inspectors are required to stamp their initials on the end of the bed of each lathe when their work is completed and the lathe has been found to be in perfect adjustment.

Write for new bulletin

*"Additional Reasons Why Monarch Lathes
Should Be Your Choice".*

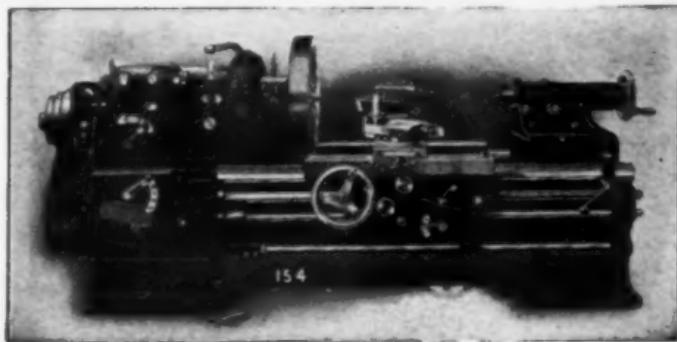
**The Monarch Machine Tool Co., Sidney, O.
New York Sales Office: 857 Graybar Bldg.**

Monarch Lathes

*Helical Gears - Timken Bearings
SMOOTHER..QUIETER..MORE POWERFUL*



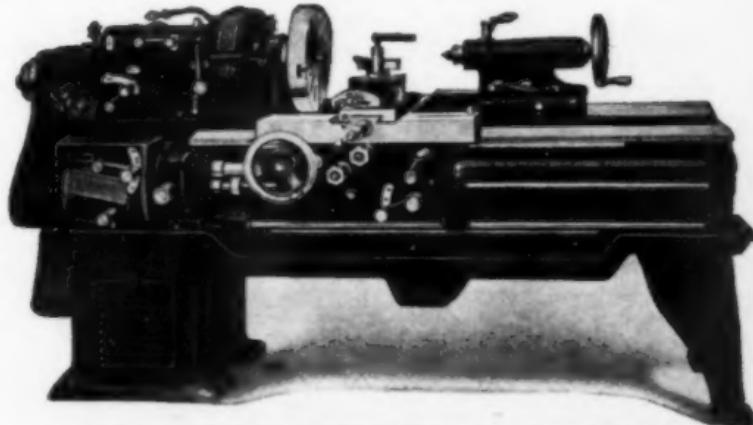
Specialists 25 Years



CINCINNATI LATHES

guarantee the quantity and quality of work you produce. High grade materials and workmanship assure you the best of service and avoidance of repair bills. Furnished in sizes from 16" to 32" inclusive, in 2' lengths of bed from 6' and up. Cone or geared head types, for belt or motor drive. Completely equipped for tool room, manufacturing or production work. Specify CINCINNATI Lathes—*Better be Safe than Sorry.*

SEND FOR CATALOG



Be Sure and See CINCINNATI LATHES at the
Cleveland Show—Booth 2-W-15

The Cincinnati Lathe & Tool Co.
Oakley, Cincinnati, Ohio



**11" Gold Seal
Heavy Duty
Precision
Tool Room
Lathe**

Built for heavy cuts and fast work, yet aligned with an accuracy of .0005". Graduations are provided at every point. The hole through the spindle is 1 7/8" diameter, and the lathe takes collets up to 7/8". All bearings are oversize. Made in motor, and single pulley belt-driven models.

The Small Lathe you have been looking for

Powered far beyond its apparent size, generously proportioned and equipped with a completeness unequalled in its field, the 11" Gold Seal Heavy Duty Precision Tool Room Lathe offers the manufacturer a long needed addition to his lathe equipment.

The time saving convenience, precision and versatility of this machine will reduce the cost of producing a wide range of parts—much work can be handled with it that formerly had to be done upon a larger machine.

All details sent upon request

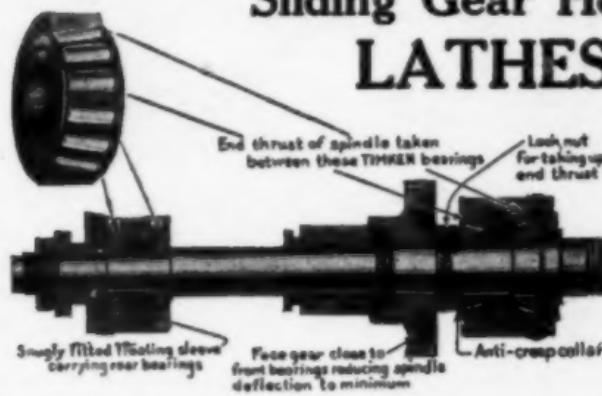
THE SEBASTIAN LATHE COMPANY
313 Culvert Street, Cincinnati, Ohio
NEW YORK ADDRESS: Room 372, 58 Church St.

SEBASTIAN LATHES

Features!

NEW
MODEL

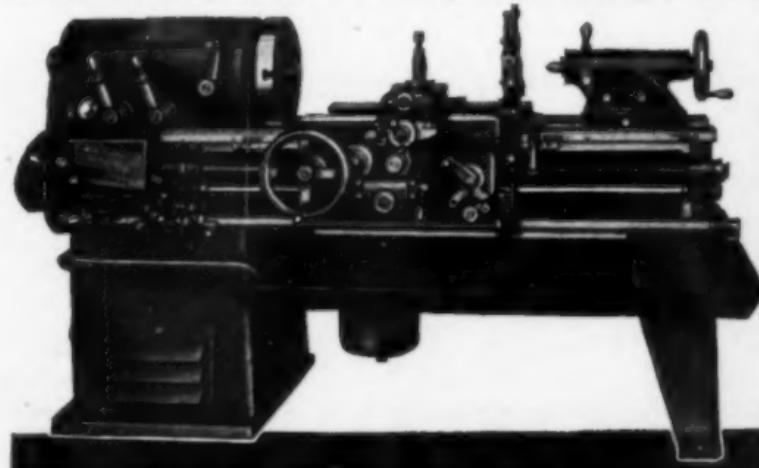
REED-PRENTICE Sliding Gear Head LATHES

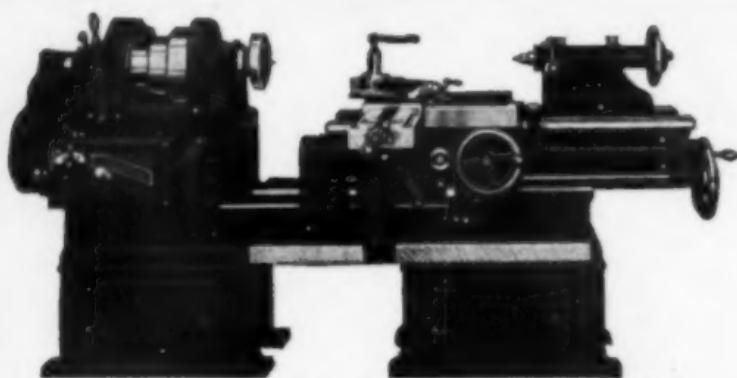


Four Bearing Precision TIMKEN Spindle Mounting.
Headstock gearing of SAE 3250 electric furnace steel.
Spindle of SAE 6140 heat treated chrome Vanadium Steel.
Cross feed screw heat treated chrome Vanadium Steel with double ball thrust, etc.

Our circulars detail complete construction features—send for them.

REED-PRENTICE CORP., Worcester, Mass.





Series "AG"—18/36" and 20/40" Extension Bed Gap Lathe

A Lathe suitable for a large range and variety of work at a minimum expenditure for equipment. A convenient lathe for small diameter work and one that will handle the large diameter work when occasion requires. Top bed slides along the lower one, perfect alignment in all positions. Heavy construction throughout.

Furnished either Belt or Motor driven with double back gear, quick change gear box, compound rest &c. all complete.

18/36" x 6' Belt Driven \$1725.00
Weight 3800 lbs.

20/40" x 6' Belt Driven \$1835.00
Weight 4000 lbs.

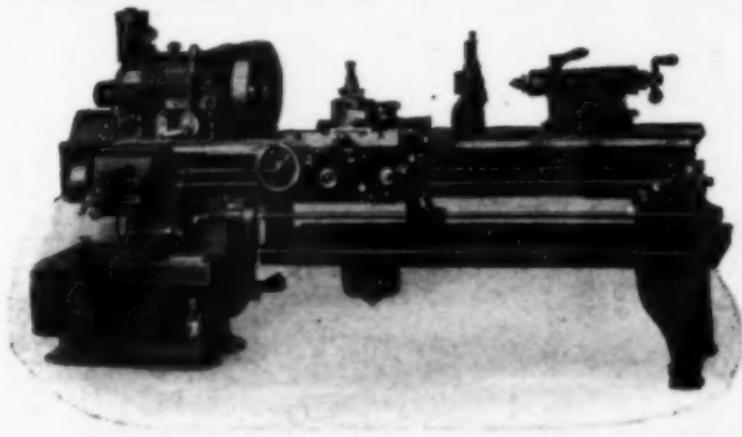
Motor prices on application

*A type of lathe worth considering
Write for information*

The Rahn - Larmon Co.
2943 Spring Grove Ave., CINCINNATI, OHIO

BRADFORD

"All Geared" LATHES



BETTER Lathe Work and MORE of It

can be turned out on BRADFORD "All Geared" Lathes. They are built along entirely new lines, combining enormous driving power with smooth running and ease of control in a manner never before accomplished. Their many features are described in detail in our "All Geared" Bulletin.

Send for a Copy Today



Bradford Unit Type Drilling and Tapping Heads

Self-contained, motor driven units, designed for one or more heads to be built into one unit *at any angle from horizontal to vertical*. Spindle speeds from 75 to 2000 R. P. M. For single or multiple spindle drilling and tapping.

Illustrated Folder on Request

The Bradford Machine Tool Co.

Precision Lathe Builders Since 1840

657-671 Evans Street,

Cincinnati, Ohio

Purchasing Performance

If it's performance you're after—faster and better productivity—choose the CLEVELAND Planer. These Open Side Planers are designed and built to measure up to modern production requirements. *Easy to control*—all levers are reached from one position, saving operator's steps and energy. *Accurate*—the rigid construction and fewer parts guarantee precision and long life. It will pay you to get the full details.

12 **The Cleveland Planer Company**

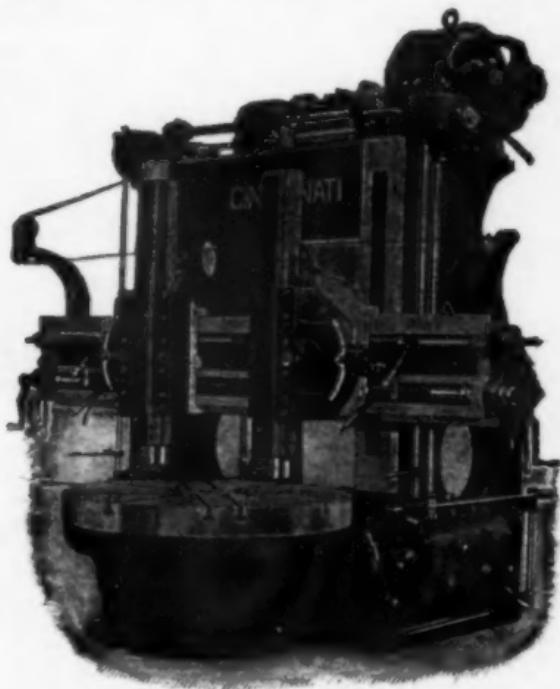
Established 1900
3148 Superior Ave.,
Over 1100 Installations

Send
for
Descriptive
Folder
NOW!



The Open Side Planer with the Column Base Cast Integral with its Closed Top Bed.

CINCINNATI 48", 60", 72", 84"
Rapid Traverse Boring Mill



Among its salient features are—Heavily reinforced table, driven by bevel gear and pinion; rapid power traverse in all directions; centralized control, with all fine adjustments, rapid traverse, hand operating handle, feed change, feed reverse, speed change, table control and brake levers, all within immediate reach of operator; box type housing; steel gears in feed and speed boxes; tumbler type gear changes, etc., etc.

Write for Bulletin of Cincinnati Rapid Traverse Boring Mills, containing specifications and complete description, from which the practical mechanic will readily understand why the "Cincinnati" is selected for RAPID PRODUCTION.

The Cincinnati Planer Co.
Cincinnati, Ohio, U. S. A.

Coarse tooth spiral mill set-up with underslung tooth rest. Tooth rest is carried on stationary wheel head. Wheel pressure keeps tooth against blade.



More cutting
—Less grinding

With Solid-Backed Cutting Edge

ON the Oesterlein Grinder, a cup-shaped wheel grinds a straight-line clearance that results in a solid-backed cutting edge. This type of edge lasts much longer than any hollow ground one. The advantages of a solid-backed cutting edge? It stands up longer and results in less time out for maintenance, increased output, reduced cost of production. These savings characterize the Oesterlein Grinder and soon pay for the machine.

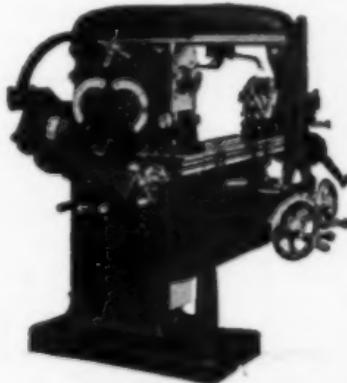
Write for booklet E—a treatise on correct grinding of metal-cutting tools.

The Oesterlein Machine Company
Cincinnati, Ohio

OESTERLEIN
OHIO
MILLING
GRINDING DRILLING
EQUIPMENT

Save \$700 to \$1000 on a Miller!

WITH these machines a high standard of accurate milling can be maintained. The standardized spindles are forged from high carbon chrome nickel—every gear, shaft, clutch and stud in the driving and feed mechanism is either pack hardened or heat treated.



No. 2 Ohio
Universal
Constant Speed
\$ 1775

No. 3 Ohio
Plain
Constant Speed
\$ 1880

Consider these features also:

- (1) Veeflat overarm; (2) complete interchangeability of arbors, chuck, etc.; (3) fully inclosed motor—readily accessible; (4) quick-stop brake; (5) disengaging hand wheels; (6) automatic lubrication; (7) 16 feeds—16 speeds; (8) sensitive control starting lever; (9) pilot wheel for each operation to overarm; (10) gauging strip.

Reasons for Low Prices

Increased production makes possible manufacturing economies.

While incorporating every feature essential for economical milling—these machines run right handed and do not have reversing mechanism, dual control or frictionless bearings.

WRITE FOR MILLER CATALOG

THE OESTERLEIN MACHINE CO.
CINCINNATI, OHIO

Our Latest Type Multi-Duty All Ball Bearing Radial Drill



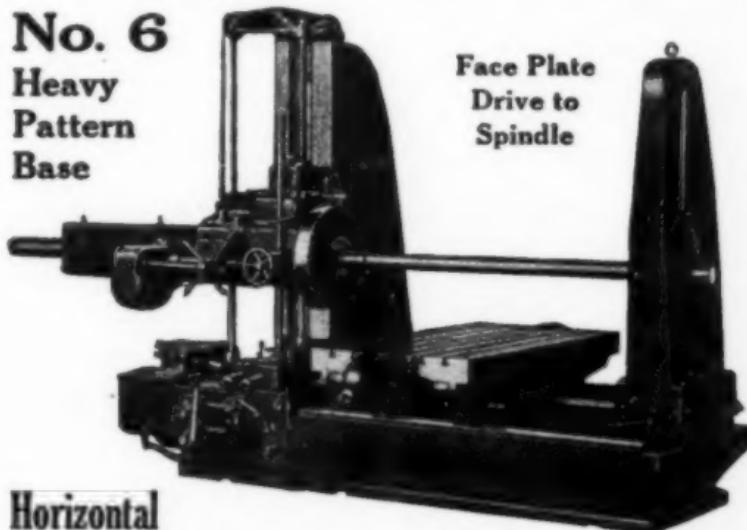
Sizes 3 to 8 Ft.

The Dreses Machine Tool Co.
CINCINNATI, OHIO

The New Improved DEFIANCE

No. 6

**Heavy
Pattern
Base**



Horizontal Boring, Milling, Drilling and Tapping Machine

The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84" per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

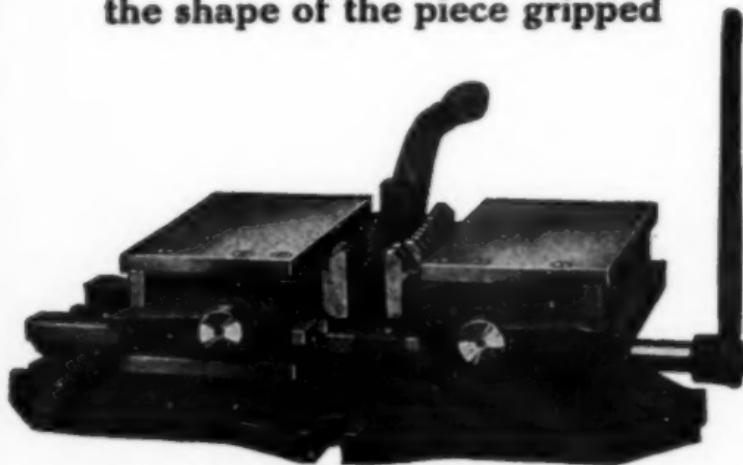
Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines, Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

**The Defiance Machine Works
Defiance, Ohio**

Designers and Builders of Precision-Production Machine Tools and
Special Woodworking Machinery

What You've Been Looking For

A vise with jaws that assume
the shape of the piece gripped



Berjo

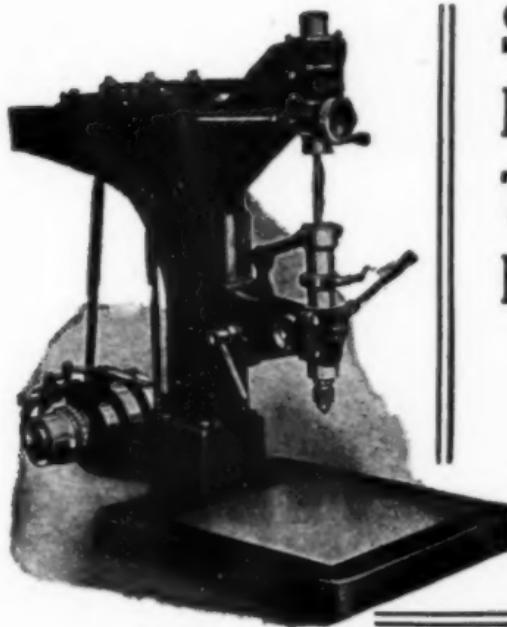
Machine and Bench Vises

Berjo vises have multiple compensating jaws which hold *regular* or *irregular* shaped parts positively and securely. The principle

is simple. A practical mechanical arrangement back of the jaws allows them to follow the contour of the work. Two main jaws, one fixed, one movable, hold the segmented compensating jaws. Berjo vises are suitable for all classes of work, but particularly adaptable to the tool room and the shop where a number of variously shaped pieces are going through.

Manufactured by the makers of Avey Drilling Equipment.

The Avey Drilling Machine Co.
CINCINNATI



Speed
Eliminates
Twist Drill
Breakage.

WHY ?

THE
SPEED KING

Avey

No.
 $\frac{1}{2}$

SPEED
12,000
R. P. M.

Ask for full
Information

A fine twist drill
will only stand so
much pressure
with resistance
until it snaps.

Put enough speed
behind that little
tool and it cuts
so fast that resist-
ance disappears
and it's just like
cutting butter.

It Pays to Specialize

The Avey Drilling Machine Co.
CINCINNATI, OHIO

Production Accuracy at low operating cost



**TIMKEN
ROLLER
BEARINGS**

**Ready for
the Job!**

15-inch Sliding Head Sensitive Drill

**Mounted on Box Type
Column with
Oil Groove Table**

**Spindle Speeds—
400, 850, 1750 R. P. M.**

Capacity 0 to $\frac{1}{2}$ ".

**This drill can be furnished
in speeds ranging from
400 to 10,000 R. P. M.**

SPECIFICATIONS—1 Spindle

| | |
|---|-------------------|
| Overhang | 7 $\frac{1}{2}$ " |
| Vertical adjustment of sliding head | 9 $\frac{1}{2}$ " |
| Traverse of feed rack | 3 $\frac{1}{4}$ " |
| Center of spindle to column at gap | 8 $\frac{1}{2}$ " |
| Center of spindle to planed column face | 7 $\frac{1}{2}$ " |
| Distance between spindle centers | |
| Size of Table | 16" x 20" |
| Size of base of lower column | 23" x 18" |
| Maximum Distance from spindle to table | 33" |
| Width of table bearing on column | 4" |
| Height to upper edge of top bearing cap | 73" |
| Net wt. mounted on base & pedestal | 505 lbs. |
| Crated weight | 613 lbs. |

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

**New York Branch
407 Broome St.**

**Complete stock
carried at branches**

**San Francisco Branch
955 Folsom St.**

The Improved Canedy-Otto No. 29

Ready for the Job



3 Spindle Speeds
720-1430-3000 R. P. M.

Completely
Motorized—
Also Furnished
Belt Driven

The Improved Canedy-Otto Sensitive Bench Drill comes complete with toggle switch, cord, socket, $1\frac{1}{2}$ " endless leather belt, and chuck. The motor is adjusted on a sliding base that maintains the proper tension on the belt at all times, and cuts lost motion and vibration to the minimum. Now equipped with a 3-step cone pulley which gives three spindle speeds of 720, 1430 and 3000 R. P. M. Complete information, with close price, upon request.

Canedy - Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

New York Branch
407 Broome St.

Complete stock
carried at branches

San Francisco Branch
935 Folsom St.

MARVEL

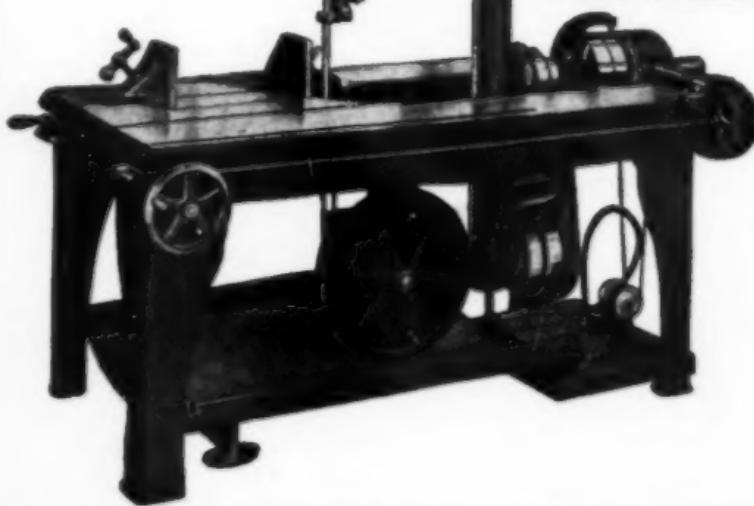
The Marvel No. 8 Metal Band Saw is a standard tool in hundreds of the best shops. It cuts off square or any angle right or left to 45 degrees, has big roomy bed or work table, three cutting speeds, quick acting vise, ball bearing band wheels, carriage and guide rollers, new feed that registers blade pressure in pounds, convenient electric light fixture attached. Write us for details.



Visit our exhibits at two
expositions at Cleveland:

National Metal Exposition
(Steel Treaters)
Sept. 9th to 13th.

National
Machine Tool Builders,
Sept. 30th to Oct. 4th.



ARMSTRONG - BLUM
341 N. Francisco Av.,

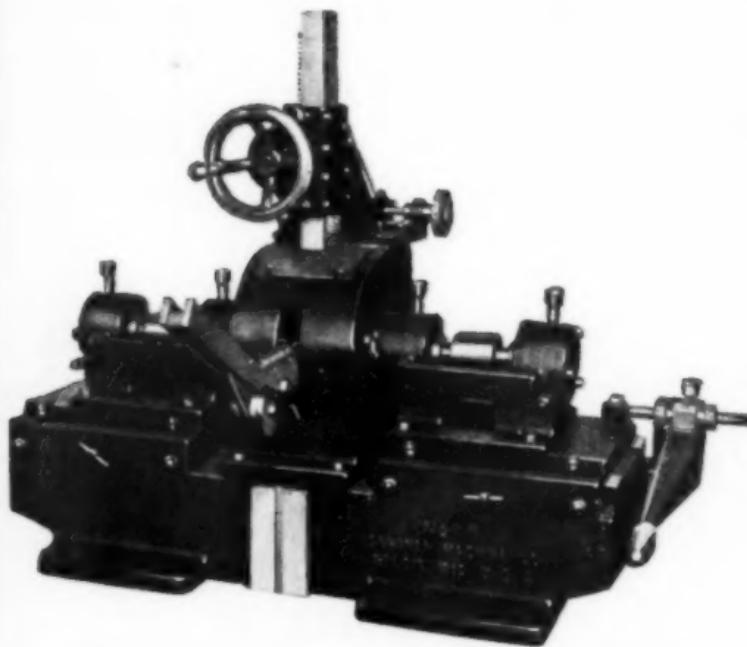
MARVEL

BLADES THAT ARE DIFFERENT

High-Speed-Edge hack saw blades have a cutting edge of *Genuine High Speed Steel* welded to a back of special heat treated alloy steel. They outlast the old style common blades 6 to 10 times and are guaranteed *Not To Break* in any machine. *The Blade That Appeals To The Man In The Shop.* Get the details from us.



MANUFACTURING CO.
CHICAGO, ILLINOIS



For small parallel flat surfaces

A GREAT many small parts having opposite parallel flat surfaces of approximately equal area, can be handled with great rapidity and economy on the

GARDNER No. 77— 10" DOUBLE SPINDLE DISC GRINDER

*Find out what this tool can accomplish FOR YOU—
Write for Bulletin No. 77!*

Gardner Machine Company
Near Wheeler Ave., Beloit, Wis., U. S. A.

**Cut Machine
Finishing Cost
and Time
In Half**

with the

Nedco
**Sanding and Polishing
Machine**

The NEDCO Sanding and Polishing Machine produces a perfect surface on castings or rubs down filler in $\frac{1}{2}$ to $\frac{1}{3}$ the time ordinarily required for hand work.

The NEDCO is built for strenuous service, and uses any standard 9 $\frac{1}{4}$ " abrasive disc. Weight 12 lbs. Equipped with $\frac{1}{4}$ HP universal motor either 110 or 220 volts—working speeds Model "N" 1750 R. P. M. Model "S" 850 R. P. M.

Price \$85.00 F. O. B. Natick

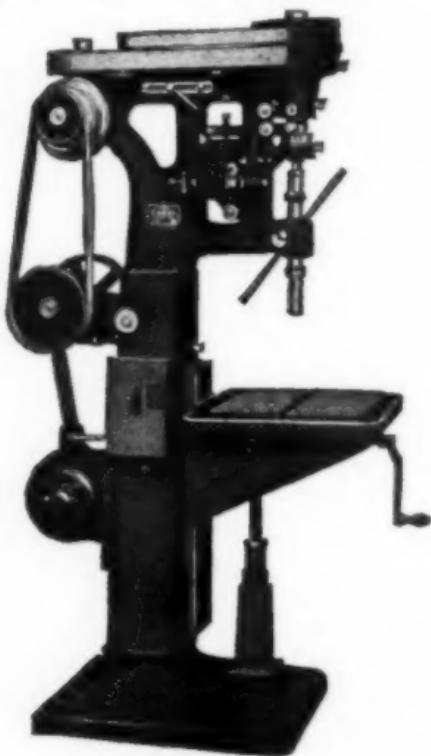
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**THE NEDCO
COMPANY**

**Dept. H
NATICK, MASS.**

HAMMOND

Drilling and Tapping Machines

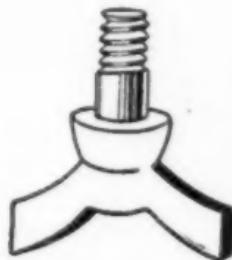


Write for Circular

The Hammond Mfg. Co.
7808 Kinsman Road, Cleveland, Ohio

Threading 1200 pieces per Hour

These brass wing
screws shown are
being threaded on
our



Standard High Speed Tapping Machine



*Let us show you what can
be done on your work*

Leland-Gifford Company, - Worcester, Mass., U.S.A.

BRANCHES

BOSTON CHICAGO CLEVELAND
DETROIT NEW YORK
PITTSBURGH ROCHESTER

AGENTS

| | |
|---|-------------|
| Hendrie & Bobbitt | Denver |
| F. E. Satterlee Company | Minneapolis |
| Smith Booth Usher Co. | Los Angeles |
| Herberts-Moore Machinery Co., San Francisco | |
| F. F. Barber Machinery Co. | Toronto |

LELAND - GIFFORD

The Cincinnati Line

Of

Electric Drills Grinders Buffers

Leads Them All!

$\frac{1}{2}$ in.
Portable
Electric
Drill



THE most complete line in the country—try them on your hardest production jobs. They'll prove equal to any demand—*speed—economy of operation—dependability—everything!* Built by men who *know*, and whose years of experience are at your disposal, without obligation, in solving of your grinding, drilling or buffing problems.

A card will bring you our complete catalog

**The Cincinnati Electrical
Tool Co.**

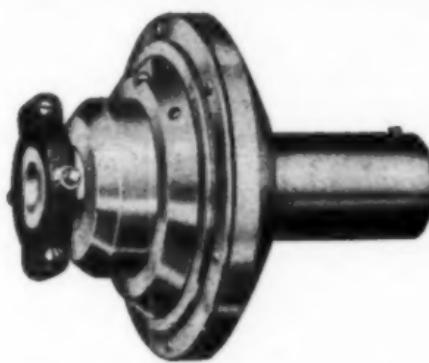
2700 Madison Rd., Cincinnati, Ohio



Floor Grinder



Tool Post Grinder



"To buy another clutch when the Conway Disc is available under your specification is to invest in obsolescence."

Centripetal action, enclosure, balance, easy engagement, instant release, and dragfree idling are salient features that co-ordinate to give splendid and smooth performance. In what other clutch can they be found?

The Conway Clutch Co.

West 6th Street, Cincinnati, Ohio

"The Conway Disc is a splendid Clutch."



NEW

**The No. 2
Heavy Duty
Automatic
Screw Driving
Machine
with
Magazine Feed**

Ready to Cut Your Costs

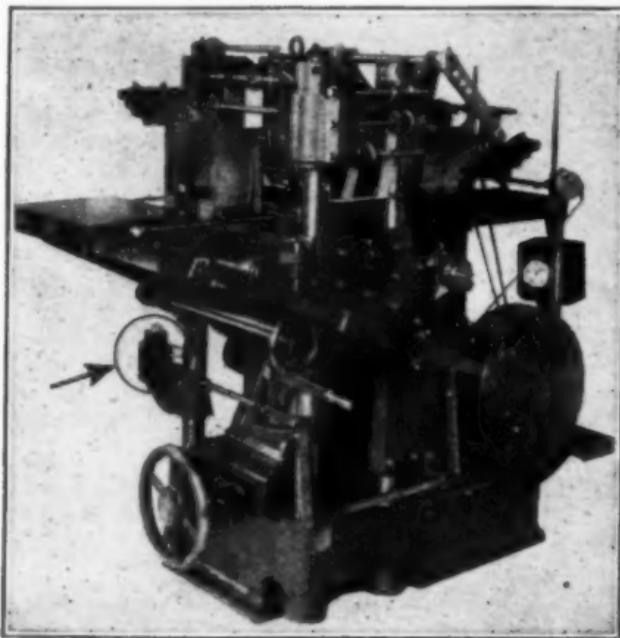
ESPECIALLY adapted for high speed production and long uninterrupted service, the NEW Reynolds incorporates a number of improvements and refinements, chief of which is the Chuck with the Equalizing Jaws. Drives screws to the center of an 18" circle in work not over 18" high, while gap column can be substituted to drive screws to center of 48" circle in work not over 6" high.

THE No. 2 will magazine and drive, without change or adjustment, any three consecutive sizes of wood or machine screws from No. 6 to No. 14 inclusive. It will pay to investigate this valuable production unit.

Give the dimensions overall of your work, the length and gauge of screws used, and we'll send facts and figures showing how the REYNOLDS will save YOU money ::::

The Reynolds Machine Company
Dept. H. H. Massillon, Ohio

Don't Design a Safety Stop for that
New Machine—Use
Simplex Safety Stop Motions



SIMPLEX STOPS are standard equipment on Standard Machinery Co.'s automatic feed embossing presses for book covers as shown above. The Stop protects the press from loss of production and die damage due to bad covers, jams, mis-feeds, etc.

The Simplex Stop will protect any number of danger points at the cost of protecting one with a mechanical stop. 100% dependable—the irreducible minimum of maintainace. Operates from lighting circuit or from battery, generator or transformer. Guarantees absolute protection, at rock bottom cost—it will pay you to investigate.

Descriptive Booklet containing sample wiring diagrams, sent upon request.

The Atlantic Company
Box 133, Station B., Brooklyn, N. Y.

SUPERIOR Slot Milling Machine



**Maximum Capacity
Slots $\frac{3}{8}$ in. wide
 $2\frac{1}{4}$ in. long**

THIS MACHINE is designed for milling slots accurately and rapidly with a two lip end mill, by swinging the mill in an arc of a circle while it is revolving. The swinging of the mill is controlled by an adjustable throw crank. Table carrying work is fed automatically and the rate can be varied as required. Equipped with ball bearing spindle. Table is $6\frac{1}{8}$ in. wide and $9\frac{1}{8}$ in. long over oil channels; working surface $3\frac{1}{2}$ in. wide, 7 in. long. Travel, 4 in. Tee slot $\frac{5}{8}$ in. wide.

*Send for Descriptive Bulletin with
Diagrams showing various slotting
operations and cutting time*

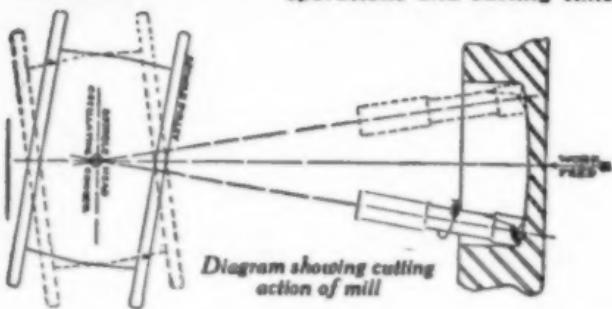
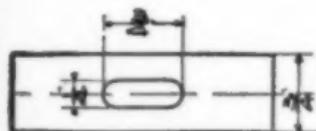


Diagram showing cutting action of mill



*Material—Machine Steel
Time 3 minutes*



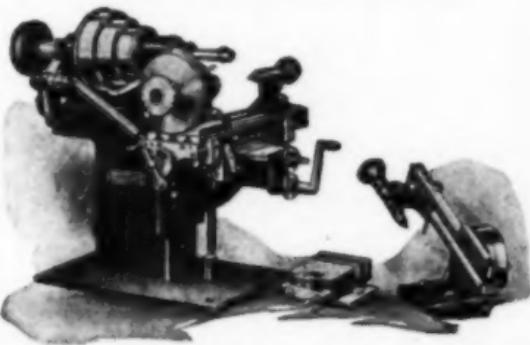
*Material—Machine Steel
Time 3½ minutes*

Superior Machine & Engineering Co.
1920 Ferry Park, Detroit, Mich.

HARDINGE

Supreme Quality

*Has been built into the
Cataract Bench Miller*



YOU WILL FIND Cataracts ideal machines where production is demanded at minimum cost. Their speed, accuracy and adaptability is such that they invariably increase output.

Beside their wide range of feeds, they have independent steel indexes graduated to read to thousandths of an inch. They are equally well adapted to the demands of the lighter tool room, mixed or production work.

*On request we will mail you full
details and the moderate price*

Hardinge Brothers Inc.

4149 Ravenswood Ave.
Chicago, Ill.



The **ROCKWELL** **Hardness Tester**

Only one Dial to Watch.

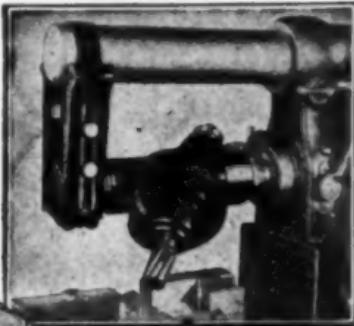
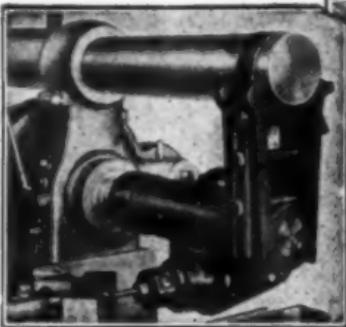
Speedy and Simple

WILSON-MAEULEN CO
INCORPORATED

735 East 143rd Street,

New York

Throw off fixed milling conditions!



Don't question the ability of your millers on an awkward job limited by fine plus or minus tolerances!

For the usual or unusual work, equip any Standard Round Overarm Miller with a PORTER-CABLE Milling Attachment—and effect the economies that can only result from flexibility like this.

PORTER-CABLE Milling Attachments drastically reduce set-ups. After all, it costs less to move the cutter than the work.

They can be attached to miller in 3 minutes. Can be operated at any angle in any plane.

They increase miller capacity by doing intricate and awkward jobs formerly done by hand.

Don't be handicapped by fixed milling conditions. Consider the several economies available in PORTER-CABLE High Speed Milling Attachments—made for hand and power feeds—5 sizes, one for every requirement.

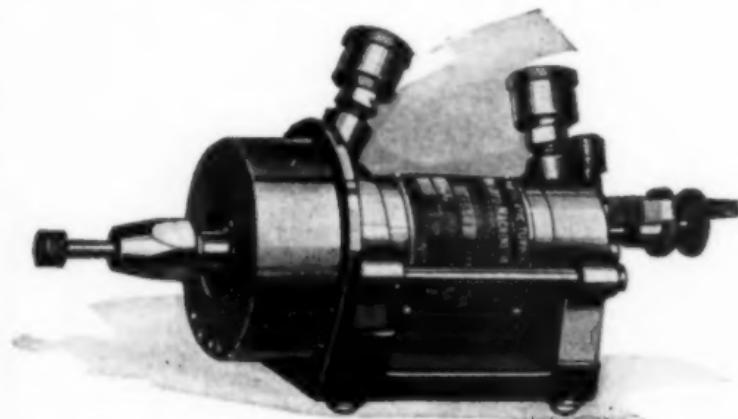
*Booklet details every size, every feature.
Write for it!*

PORTER-CABLE

MACHINE COMPANY
1730 North Salina St., Syracuse, N. Y.

© 3792

60,000 R. P. M. Noiseless-Vibrationless Internal Grinding



This 60,000 R. P. M. Pneumatic Turbine has the proper speed to give wheels of very small diameter their maximum cutting capacity and produce work of extreme accuracy. The unit runs noiselessly and without vibration.

Onsrud Pneumatic Turbines constitute the ideal High Speed drive—their principle involves no other wearing parts but the bearings. These are kept cold by the exhaust air expanding within the turbine, contributing to their unusually long life. Dust and grit is prevented from entering the bearings by the natural construction of the unit.

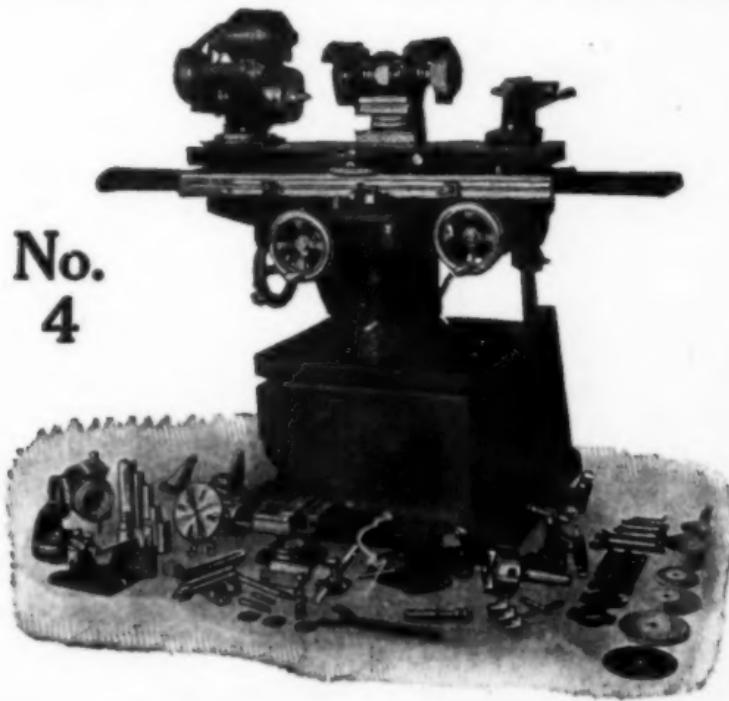
Onsrud Pneumatic Turbines are built in various sizes having speeds of from 15,000 to 60,000 R. P. M. They have a wide range of utility and have solved many grinding, buffing and polishing problems.

WRITE FOR BULLETINS

Onsrud Machine Works, Inc.
3906-32 Palmer St., Chicago, Ill.

Grand Rapids Universal Cutter and Tool Grinders

No.
4



Sharp Tools Cut Production Costs

Good tool room equipment keeps your expensive production machinery going at top speed. The Grand Rapids No. 4 Universal Grinder is heavy and powerful, with a remarkable wide range of work. Wet or dry cutting jobs are easily accommodated with the complete attachments furnished. Motor or belt drive, with or without automatic feed. Large table, ease and rapidity of operation, long life and low maintenance are some of the factors guaranteeing efficient operation.

We make a complete line of Grinders—Send for details

**GAILLMEYER AND
LIVINGSTON CO.**

342 Straight Ave., S. W.,

Grand Rapids, Mich.

Illinois Plain and Surface Grinder



This machine has been designed to meet the popular demand for those wanting a general purpose grinder. One end is arranged for surface grinding and the other end for tool or plain grinding.

Special Features

Base: Box type construction, with liberal bearing space for knee, insuring accuracy.

Knee: Supported by elevating screw having ball thrust bearing. Hand wheel graduated in thousandths, long bearing on column.

Spindle: Made of High Carbon Steel, heat treated, runs in 4 Timken tapered roller bearings, adjustment collars to each bearing. Bronze bearings furnished, if desired.

Countershaft: Ball bearing with tight and loose pulley and belt shifting device.

Lubrication: Alemite system for spindle and countershaft.

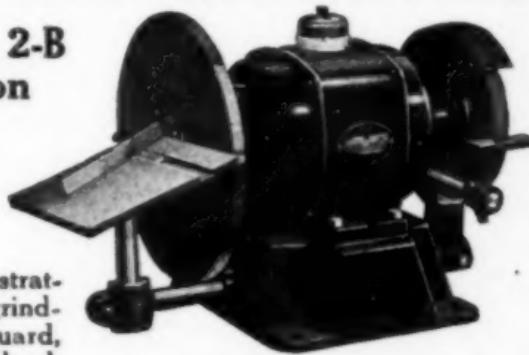
Write for Complete Specifications and Prices

Illinois Machine & Mfg. Co.
LaSalle, Illinois

Winterhoff Portable Electric Grinders

Equipped with Timken Tapered Roller Bearings

Nos. 2-A & 2-B
Combination
Tool and
Disc
Grinders



Complete, as illustrated, with 10" x 1" grinding wheel and guard, 12" or 14" disc wheel, tilting table with protractor guard, toggle switch and cord fitted with attachment plug. Repulsion induction motor, $\frac{1}{2}$ or $\frac{3}{4}$ h. p., single phase, a. c. or d. c. Other models include the No. 1-B, an 8" or 10" Portable Grinder; Nos. 3A and 3B Double End Disc Grinders, 12" or 14" disc.

Write for Grinder Catalog, including Low Prices

Portable Electric High Speed Sensitive Bench Drill



No. 9 JUNIOR DRILL
10 $\frac{1}{2}$ " Swing, 0 to $\frac{3}{8}$ " Capacity

Positively the greatest value ever offered in a machine of this kind. Equipped with $\frac{1}{4}$ h. p. motor, two step cone pulley giving speeds of 1100 and 2200 r. p. m., horizontal drive gives full power to the $1\frac{1}{4}$ " endless belt. Driven cone has bearing support at each end; all parts accurately machined and interchangeable, complete with Jacobs Chuck.

We also make a line of portable, electric Saws and Sanders

Detailed Information Sent Upon Request

Winterhoff Tool & Machine Co.
109 South Elkhart Ave., Elkhart, Ind.

Taylor & Fenn Belt Driven
No. 12 Spring Press



**UNIFORM BLOW
SPRING PRESSES**

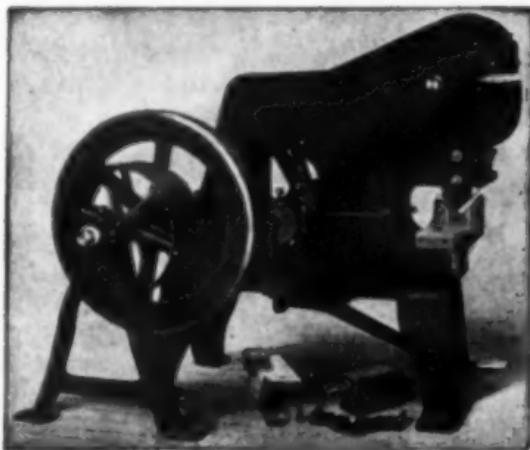
Are made in
three sizes,
with either
single or
double action

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of $3\frac{1}{4}$ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

The Taylor & Fenn Co.
Hartford, Conn., U. S. A.

BELOIT



Combined Power Punch and Shear

Built in seven sizes. Nos. 51, 52, 53, 54, 55, 55½ and 56

Direct connected motor or belt drive

THE best all-around punch and shear in a combined machine of moderate cost. Really three machines in one, for it combines the single end punch with the alligator shear for flat bars, and the round cutters for round bars—and *all for the price of one single end machine!*

HEAVY, substantial, amply back geared to require the minimum amount of power, compact, easy to operate. Can be equipped with angle shearing attachment, angle notching and coping attachments if desired.

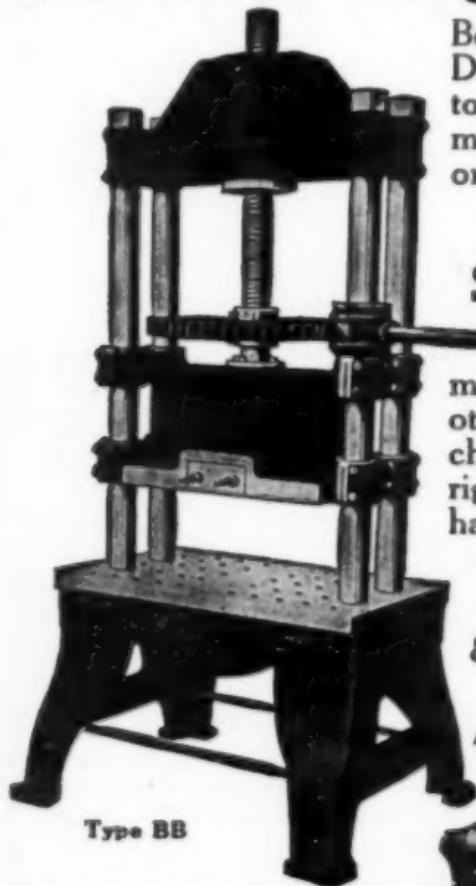
Write Today for Catalog and Prices

Hendley & Whittemore Co.

100 S. State St., BELOIT, WIS.

PUNCHES—SHEARS—BENDING ROLLS

Perfect Alignment



Type BB

Between Punch and Die enables one man to do speedier and more accurate work on this

Four Post Screw Press

than two men can do on any other type of machine. Sensitive and rigid in operation, it has power to shear in any die within its capacity.

**80 tons pressure—
table 20" x 36"**

Also three smaller sizes

Surface Grinder

Silent efficiency is the action of this powerful and rigid surface grinder—equipped with graduated feeds and all the latest attachments.

Price and details on inquiry

**JARECKI MACHINE
AND TOOL CO.**

Department A

GRAND RAPIDS,

MICHIGAN



KRW Hydraulic and Sensitive ARBOR PRESS

Gives All-Around Efficiency at very Low Cost

THE latest improved combination KRW Hydraulic and Sensitive Arbor Press includes many improvements not found in any other press, at any price.

35 TONS CAPACITY

Hydraulic pressure easily operated by one hand controls movement of ram to one-thousandth of an inch movement. Automatic air vent and pinion brake holds ram at any height when not in use.

SENSITIVE

Press Attachment incorporates every feature of a 3-ton bench press, plus adjustable table.

Sold direct at Reduced Price

\$115⁰⁰ F. O. B. Factory

COMPLETE with all Attachments as shown



K. R. WILSON
10-14 Lock St., BUFFALO, N. Y., U. S. A.

K. R. Wilson Shop Equipment Sales Co., Los Angeles, California
Export Department: 126 Liberty St., New York City

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

Made in three
sizes of single
and multiple
spindle models

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

See our Display
Booth 3-W-18



CLEVELAND
Sept. 30—Oct. 4

NATIONAL MACHINE TOOL SHOW

Light Accurate Drilling?



10" SUPERIOR
Type: M

Ask us for information about the
SUPERIOR Bench Drill.

[A copy of our complete catalog is ready
for you. May we send it? Now?]

(Sizes from 10" to 36" inclusive)

Superior Machine Tool Co.

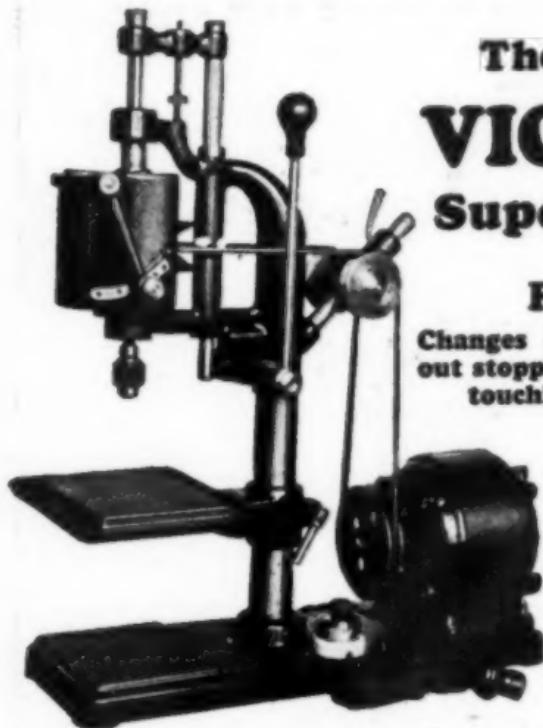
P. O. Box 376,

SINCE

Kokomo, Ind.

1902

Now you can increase your production
and drill more accurate holes with



The NEW

VICTOR Super-Drill

FIVE

Changes of speed without
stopping the drill or
touching a belt !!

Cut
Your
Drilling
Costs

50%

VERSATILITY is the key-note of the VICTOR Bench Super-Drill. The exclusive patented adjustable pulley permits an instant change from 1,600 r. p. m. to 2,200, 3,000, 3,800 or 4,250 r. p. m. without stopping the machine or touching a belt. Think of the time saving.

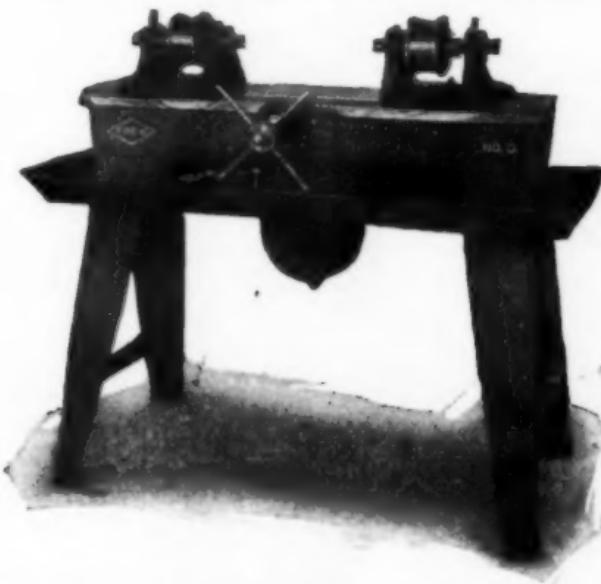
Ten Big Features

(1) Ball bearings in ALL revolving parts and end thrust; (2) Wonder pulley chamber and speed lever to regulate r. p. m.; (3) Standard Jacobs or Etco chuck; (4) Spindle travel 2"; (5) Drill table absolutely level; (6) Positive spring belt lock; (7) Self-adjusting belt; (8) $\frac{1}{4}$ h. p. motor, a. c. or d. c.; (9) Fully equipped with belt, switch, cord and plug; (10) Portable—weight only 65 lbs.

Write for Complete Description and Low Price

The Thompson Manufacturing Co., Inc.
SOUTH EASTON, MASS.

FREW No. 0 Duplex Horizontal Drill



For Speedy, Accurate Production

THIS machine is designed for simultaneously machining work from opposite directions on the same axis, the work being held in suitable fixtures mounted on the bed. Some of the operations include drilling, counterboring, turning and hollow milling. Facing can be done in practically half the time consumed in single spindle operations, giving an alignment that the accuracy of the machine provides for.

Timken tapered roller bearings or ball bearings; stops which regulate the depth to which tool goes; felt wipers for clearing chips and several methods of providing motion to the heads are some of the outstanding features of the No. 0 Duplex Horizontal Drill.

Write for the Descriptive Bulletin

THE FREW MACHINE CO.
136 West Venango St., PHILADELPHIA, PA.

We also manufacture: Tapping Machines, Profiling Machines, Cam Milling Machines, Wood Working and Special Machines.

THE BULL DOG

1/2"
Heavy
Duty

\$48



Universal
Current

Let's Send You 16 Reasons
why BULL DOG DRILLS
Are the BEST

Week's
FREE Trial

*If your dealer can't supply you, we'll
gladly send you a biting BULL DOG
Drill for a week's rough-house test.*

National Electric Products Co.
Dept. H. 148 Baxter St., New York, N. Y.

Stevens Duple Drills

(Ball Bearing Throughout)

For Double End Horizontal Drilling, Boring and Reaming

Three Sizes—Hand Rack Feed
Two Sizes—Power Screw Feed



Illustration Shows Small or No. 00 Size

Special Circular Sent on Request

Manufacturers Of

Double end horizontal drills, milling machines and attachments, milling machine vises, dividing heads, index centers, single and multiple spindle, hand screw machines, cutter grinders, screw slotters, hand lathes, collet chucks, oval chucks, rotary tables, hex square milling fixtures, air devices, oil pumps.

WRITE FOR CATALOG

JOHN B. STEVENS INC.

25 Cleveland Place,

New York City

Economy Production On Small Parts Of All Shapes



**Stecher Automatic
Universal Bench Drill**

Wide adjustability of
feeds and speeds.

Work is clamped and
ejected automatically.

Both hands left free
to handle work.

A momentary pressure on the knee control under the bench, and the Stecher Automatic does the rest, leaving both of the operator's hands free to handle the work. It clamps the piece, feeds the drill thru it, and ejects it without a hitch.

The number of holes that can be drilled in a given time is limited only by the capacity of the drill; the feed and speed of which are easily adjustable to the work in hand.

By merely pulling down the hand lever the Stecher will change from an automatic production tool with a power feed, to a high speed, hand feed, sensitive drill press.

*Send us a sample of your small parts to be drilled,
and we will show you real economy*

The Chas. Stecher Co., 2452 N. Greenview Ave.,
CHICAGO, ILLINOIS

More Threads—Better Threads —At Lowest Cost



RICKERT- SHAFFER

Automatic Single Purpose Threading Machine

Accuracy:— The R-S Machine is practically the only automatic threader which will maintain the accuracy demanded by automobile manufacturers.

Dependability:— Roller bearings are used for spindle sleeve; bronze for other vital bearings; individual motor drive; built-in pump for circulating coolant, with generous sized reservoir for holding same.

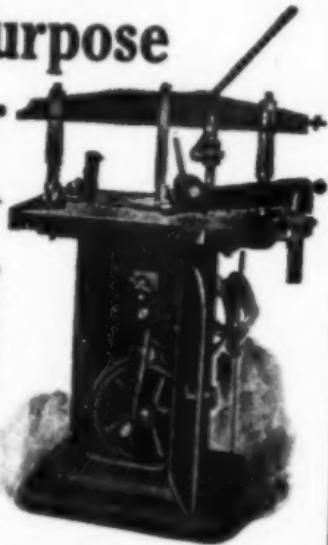
Flexibility:— Can be adapted to almost every job of threading, from the simplest to the most complicated. Combination tools can be supplied so that chamfering, reaming, facing, etc., can be done simultaneously with the threading and with but one chucking.

Reliability:— The R-S Machine is backed by a company whose personnel comprises men who have specialized on thread cutting only for over 35 years. Experience has taught them to produce threading equipment which gives *real service*.

Write for Descriptive Folder and Prices

RICKERT-SHAFFER CO., Erie, Pa.

Davis All-Purpose Keyseater



From the largest, to the smallest keyseating job, the DAVIS can be set up quickly for each item of a run of mixed work.

And a Satisfactory Job

The Cutter



In sizes from 1/16 to 1-inch



Cuts key-ways in pulleys, gearblanks, bell cranks, crank handles, etc.; does slotting & oil grooving.

Two sizes. Write for folder, with table of cutting time.

Davis Keyseater Company
255½ Mill Street, Rochester, N. Y., U. S. A.



Bench
Type "C"

VIM TOOLS

Portable
Electric
Versatile
for
Screw Driving
Nut Setting

The VIM Bench Machine Type "C" for screw driving and nut setting is operated by a foot pedal, leaving both hands free for adjusting work in hand. It is especially designed for female help. Throat or clearance of work is 6". Screws and nuts can be driven at high speed—2000 R. P. M. bit speed—if desired.

Type
"G"



TYPE "G" VIM Tool has flexible shaft with Universal Motor, and is a very handy machine for small screws up to No. 6. Weighs only 12 ounces. Excellent for use in out-of-the-way places.

NOTE: In all types, the bit does not operate until applied to work

*We have other types to suit your conditions.
Send for Bulletins and Prices.*

Vim Electric Tool Company
149 Broadway, New York City

THE KELLERFLEX

A Flexible Shaft Machine of a Hundred Uses.

Made in various sizes and types to meet every requirement.

Speeds from 875 to 10,500 R. P. M.

For Snagging, Burring, Lapping, Buffing, Polishing, Sanding, Drilling, Wire-Brushing, etc.

Non-Heating Shaft, Ball Bearing Hand-piece, Ball Bearing Motor, Universal Swivel.

Complete Line of Accessories

Rotary Files, Sanding Drums, Emery Wheels, Wire Brushes, Polishers, etc.

STOCKS AT

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Detroit
Chicago
St. Louis
San Francisco

*Write us today for list of users
in your line of manufacture*

**Keller Mechanical
Engineering Corp.**

KME 58A Washington St.,
BROOKLYN, N. Y.

Builders of the Keller Automatic Die Cutting Machines





RESULTS from this new perfected Buffing Wheel are *Amazing!*

CUTS BUFFING
COSTS 50%

ABSOLUTELY SAFE AT ANY SPEED

Patented Device Uses Less Abrasive Cloth

EVERY disadvantage of rag buffing overcome. Operates at 3450 R. P. M., using patent-clipped abrasive cloth strips that can be changed in 30 seconds. Wheel requires no re-conditioning—will never break down—and utilizes every bit of buffing surface. Cuts through rust, corrosion and tool marks to the clean metal surface with a labor and time economy that has caused its complete adoption in shops wherever introduced. Made in 6" and 8" diameter wheels of 2½" face for any arbor size.

C. B. HUNT & SON
643 McKinley Ave., Salem, Ohio

Send for Descriptive Literature

Without obligation, send for illustrated bulletin describing how buffing costs can be cut exactly in half with this new invention in buffing wheels. WRITE TODAY!

Quick-As-Wink
BUFFING WHEEL

Abolish Expensive Hand Finishing

with a



Simplex-A Abrasive Band Grinder

This grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. Details of this and other styles and sizes on request.

WALLS SALES CORP., 96 Warren St., New York

STANDARD
RIGHT
SPEED **TWO MOTOR**
 BALL BEARING
BUFFER
AND
POLISHER



Embraces features like

2 40° G. E. motors with independent Push Button Controls.
4 SKF ball bearings. Dayton cog belt drive.
Spindles with hand brake and locking device for changing
wheels.

Made in 3, 5 & 7½ H. P. Sizes

*Bulletin describing mechanical features and
specifications on request.*

The Standard Electrical Tool Co.

Established 1912

1938 W. 8th St.,

Cincinnati, Ohio

ABBOTT

Ball Burnishing Barrels

Improved Finish, Volume Finish, Economical Finish are the results obtained with Abbott Ball Burnishing Barrels. A wide range of work is adapted to this economical process, and the benefits of volume production can be had without a large investment in equipment.

When used with Abbott burnishing material, for efficiency, Abbott Barrels will give you large savings in the finishing of your work.

Send samples for an experimental burnish



The Abbott Ball Company

"Originators of Commercial Ball Burnishing"
1043 New Britain Ave., Hartford, Conn.

Type RF-M4 Machine



Strand

Capacity— $\frac{1}{4}$ H.P.

For
Rotary Filing
Grinding
And
Polishing

10,000 R. P. M. Attach-
ment Furnished Extra
when Required. See
Illustration.

Attachments



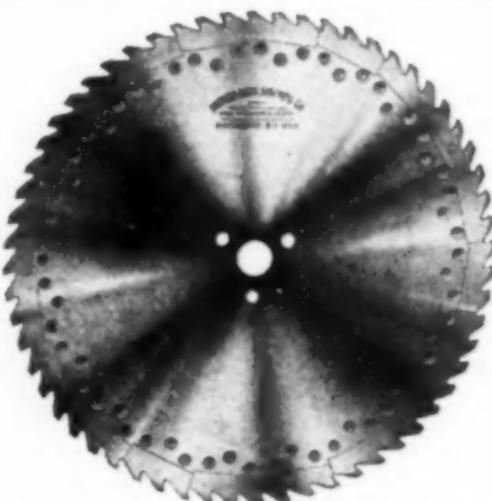
N. A. STRAND & CO.

Manufacturers

5001 No. Lincoln Street

CHICAGO

PATENT APPLIED FOR



Huther Bros. Fine Pitch Type Inserted Tooth Milling Saw

This saw, one of the few fine pitch inserted tooth milling saws on the market, is extremely popular because it is supplied with pitch ranging from $\frac{1}{8}$ " to $\frac{1}{4}$ " and more, which gives a pitch equal to any solid tooth saw. It is unexcelled for cutting small rounds and flats of steel.

Inserts are designed to operate the maximum length of time before resharpening is necessary. It can be replaced when worn out. Body of the saw is made of special alloy steel and is thin, non-breakable, free cutting, strong and flexible.

*Illustrated catalog on request.
No obligation on your part.*

**Huther Bros. Saw Mfg. Co., Inc.
Rochester, N. Y.**

OUR MACHINES **SALVAGE**

YOUR HARD TEMPERED
METAL CUTTING

Band Saws Hack Saws

**MILLING, SLITTING AND
SCREW SLOTTING SAWS**

IT COSTS **2¢** *To Sharpen* **5¢** *A Band or
Circular*

MAIL TO US
two saws and we will re sharpen them for you
FREE OF CHARGE

REDUCE YOUR SAW PURCHASES

90%

SAVE TIME AND SAVE MONEY

Write for Catalog

THE WARDWELL MFG. CO.

Makers of automatic machines for sharpening—Hack Saws, Hard
Tempered Band Saws, Milling, Slitting and Screw
Slotting Saws and all Woodworking Saws.

Manufacturers of the largest line of Saw Filters made in U. S. A.
108 Hamilton Ave., **Cleveland, Ohio**



Patented

the
WELLS
metal band saw

Incorporating the advantages of a hack saw with the cutting speed and economies of a band saw.

features:

Self contained and portable if desired—rapid cutting with extreme accuracy—long life blades, low blade expense. A wide range of usefulness—economical operation.

The WELLS SAW cuts soft and hard, ferrous and non-ferrous metals—thick and thin sections—pipe, **tubing**, strips, etc.

No change of blade or speed—cuts high carbon steel then soft brass rapidly and accurately.

Hundreds of duplicate pieces cut with a variation of less than .004".

Saves stock—width of cut less than $\frac{3}{16}$ "—blade .025" thick rigidly supported in six ball bearings.

Durable construction for hard service—strength without excess weight—ball bearing.

**A Saw for Production, Maintenance
and General Service**

We wish you to have descriptive literature—your name and address please—today? Saws will be placed on trial.

Metal Saw Division

WELLS MANUFACTURING CORP.
Three Rivers, Michigan

Exclusive territory being allotted—representatives and dealers interested, please write.

The J. & B. Filing and Sawing Machine

Production demands efficient machine tools



Type
1-AP

Any common ordinary file can be used by the J. & B. up to a 12" flat mill or bastard — any shape.

Our patented file holders take care of the taper and ones that are crooked, bringing the working side of the file to an absolute vertical position. Thus doing away with the necessity of keeping a stock of special or parallel files on hand.

Write for complete details NOW!

LaPorte Machine & Tool Co., Inc.
LaPorte, Indiana

SHELDON MILLING MACHINE VISES



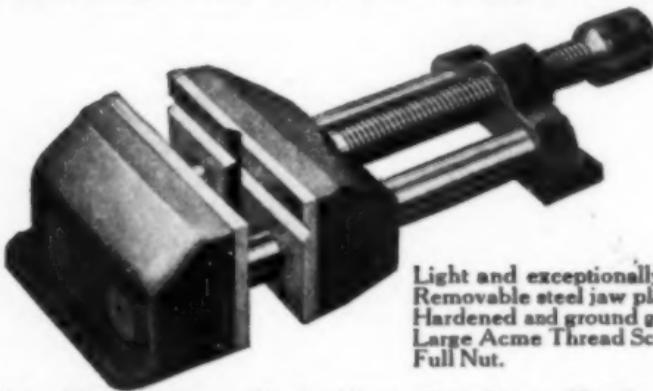
Plain or Swivel Base

The swivel vise is the plain vise with the addition of a circular base graduated in degrees. It can be removed from the circular base and used as a plain vise if desired.

Specifications and Prices

| No. | Width Jaws | Depth Jaws | Jaws Open | Plain Vise | | Swivel Vise | |
|-----|---------------|---------------|--------------|------------|---------|-------------|---------|
| | | | | Weight | Price | Weight | Price |
| 3 | 3 1/2" | 1 3/8" | 2 1/2" | 15 lbs. | \$16.00 | 25 lbs. | \$20.00 |
| 4 | 4 1/2" | 1 5/8" | 3 1/2" | 30 lbs. | \$20.00 | 45 lbs. | \$24.00 |
| 6 | 6 1/2" | 2 1/8" | 4 1/2" | 70 lbs. | \$30.00 | 90 lbs. | \$40.00 |
| 8 | 8 1/2" | 2 1/2" | 6 1/2" | 160 lbs. | \$45.00 | 225 lbs. | \$60.00 |

SHELDON DRILL PRESS VISE



Light and exceptionally strong.
Removable steel jaw plates.
Hardened and ground guide bars.
Large Acme Thread Screw.
Full Nut.

| No. | Width of Jaws | Depth of Jaws | Jaws Open | Weight | Price |
|-----|---------------|---------------|-----------|---------|---------|
| D-4 | 4 1/2" | 1 1/8" | 4" | 15 lbs. | \$12.00 |
| D-6 | 6 1/2" | 1 1/4" | 6" | 35 lbs. | \$18.00 |
| D-9 | 9" | 2 5/8" | 9" | 70 lbs. | \$24.00 |

SHELDON MACHINE CO. 3250 Cottage Grove Ave., CHICAGO, ILLINOIS

Etchograph
Trade Mark



Patented July 8, 1918
Patent No. 1,309,166

Cut Tool Marking Time 80%

For marking iron, steel or steelite, nothing can equal the ETCHOGRAPH—the original electric marker. Six stages of heat allow six variations in the size of marking, an advantage no other machine can offer. No acids—no fuss—simple to operate—just connect to light socket and write as with a pencil.

Write for descriptive folder, stating power available.

William Brewster Company
50 Church St., New York

Luma
ELECTRIC EQUIPMENT CO.
TOLEDO, OHIO

Portable Foolproof Durable

Used on
A. C. Light
Current



View of Luma Marking
and Demagnetizing hardened
steel tool in same operation.

• Marks hardened steel tools, samples of steel metallurgical specimens, special fixtures, etc. permanently and quickly with department and operation identification.

No Fuss or Muss

Demagnetizes large steel blocks, or small steel tools instantly and thoroughly.

*A Time and Labor Saving Combination well
Worth investigating by any Plant Manager.*

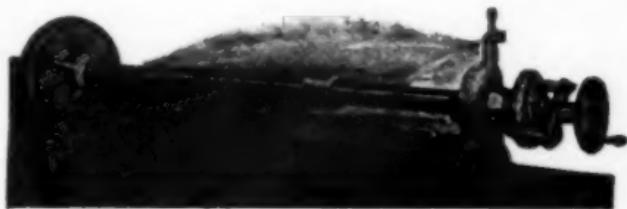
Luma Electric Equipment Co.

Main P. O. Box No. 132

Dept. H.

TOLEDO, OHIO

Pedrick Lathe Boring Bars



There are many times when you could profitably use one of your lathes for boring—if you only had the proper appliances at hand.

We can equip you for such work with one of our Lathe Boring Bars. They are made in diameters from $2\frac{1}{2}$ " to 6" and various lengths, with a large assortment of cutterheads to meet miscellaneous requirements.

The lathe provides the power, and each bar has a two-change constant feed, hand-controlled or automatic. The bar is rigidly held and is easily taken down and reset without changing the alignment.

Put your boring problems up to us. We have all kinds of new boring machines, from our Standard Portable Cylinder Boring Bar to our new Floor Boring Machines.

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Builders of Portable Cylinder Boring Bars, Crank Pin Turners, Portable Millers, Pipe Benders, etc.



MACHINE TOOL AND GENERAL
PURPOSE PUMP



VOLUME PUMPS



MOTOR DRIVEN UNITS
1/2 to 5 H.P. 5 to 75 G.P.M.

fulflo delivers coolant in volumes which promote efficiency in cutting tools.

The full, copious flow from the Fulflo is needed to make the best tool, with the best coolant, most effective.

FULFLO does not clog, therefore it always

works. It's the trouble proof pump.

No machines stopped to unclog pump. All the chips you can get into it pass through without harm.

FULFLO has longest life because its only pumping part does not wear.

MANUFACTURED BY
FULFLO SPECIALTIES CO.,
BLANCHESTER, OHIO

"GUSHER" COOLANT PUMPS



Model T-L-O

Equipped with $\frac{1}{4}$ h. p. motor, has $\frac{3}{4}$ " inlet and is set vertically outside of pan. Delivers 18 gal. 3' high; 13 gal. 6'; 10 gal. 9'; 8 gal. 12'; 3 gal. 20'.

Model T-L is identical in capacity and equipment save that it is immersed in the reservoir and is able to pump over 20' high through $\frac{1}{2}$ " discharge with 10 lb. pressure. Ideal for deep hole drilling or boning.

ARE
Centrifugal
Vertical
Ball Bearing
Perfectly Balanced
Reliable
Easily Installed
Long Lived

"GUSHER" Coolant Pumps are the simplest and most efficient pumps made. They give an instant and easy flow without air bubbles or pulsations. Deep grooved ball bearings, automatic oiling and sufficient clearance for passing chips, grit and abrasive matter through without injury to the mechanism—all these aid in efficient, effortless performance.

Complications Are Avoided
by the elimination in "GUSHER" Pumps of troublesome packing nuts, foot and relief valves, and priming. The deteriorating effects of friction are done away with through the use of ball bearings, and these ball bearings are themselves protected against the lubricant by obtaining perfect hydrostatic balance.

Made in Several Styles

and many sizes, of all desirable capacities, with individual motor or belt drive. "GUSHER" Coolant Pumps are ready to serve you.

*Send for the Complete "GUSHER" Catalog listing
the various models with capacities of
from 12 to 75 gallons per minute*

The Ruthman Machinery Co.
528-534 E. Front St., Cincinnati, Ohio

EXCELSIOR

Circular Angle Bending Machine No. 14

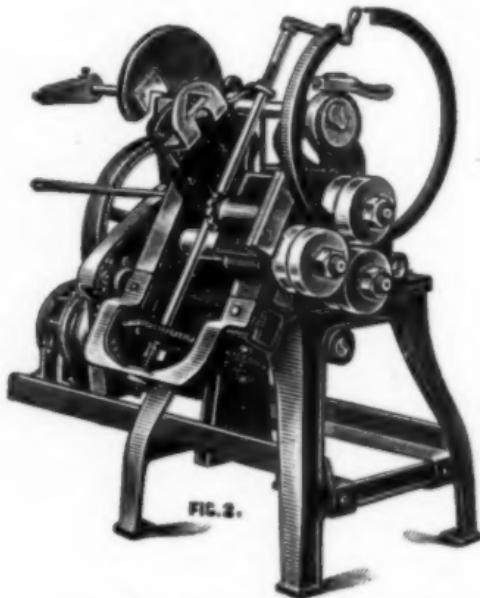


FIG. 2.



Band and Angle Iron
Forming Machine No. 13

Mfgs. of Shearing and Punching Machines,
Automatic Polishing and Buffing Machines.

Excelsior Tool & Machine Co.
East St. Louis, Illinois

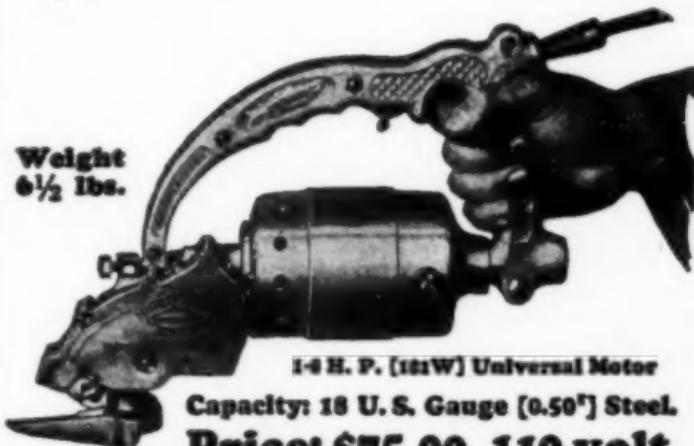
**\$1.00 Saved Per Day Means
\$300. Per Year**

Follow The Tool Economy of
Over 6000 Unishear Users

Unishear Cuts Your Cutting Cost in Half

THE MIGHTY MIDGET

Weight
6½ lbs.



1-6 H. P. (181W) Universal Motor

Capacity: 18 U. S. Gauge (0.50") Steel.

Price: \$75.00, 110 volt.

\$75.00. 220 volt.

A MIDGET in size—a GIANT in power. Built with the precision of a watch and the ruggedness of a Pile Driver. Easier to handle than a pair of snips.

The



Line

Includes many other models in heavier machines for cutting sheets up to $\frac{1}{4}$ " boiler plate, all built on the famous Unishear principle.
Complete Catalog sent on request.

The UNISHEAR CO., Inc.
Main Office & Factory, New York, N. Y., 370 Lafayette St.

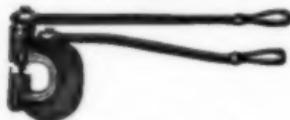
No. 8 Imperial Punch



Operating handles will not become disengaged—Roller bearing—

Capacity $\frac{1}{4}$ " hole through $\frac{1}{4}$ " iron.
Made in 3 Sizes: 7, $7\frac{1}{2}$ and 8.
Weight, 16 lbs.

No. 12 Ball Bearing Punch



Capacity $\frac{3}{8}$ " thru $\frac{1}{4}$ ".
Weight 11 lbs.

No. 2 Shear



Will shear $\frac{1}{8}$ " Thickness or Lighter
Weight 12 pounds.

Ball Bearing Punch No. 40



Capacity, $\frac{5}{8}$ " thru $\frac{5}{8}$ " iron.
Weight complete, 87 lbs.

No. 62 Angle Iron Shear



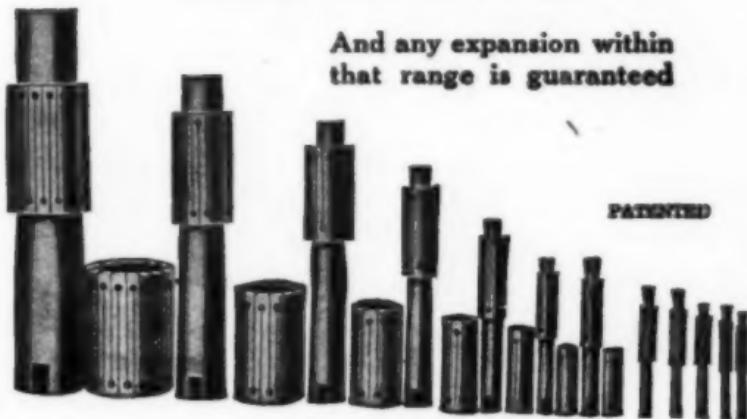
Capacity $3\frac{1}{2} \times 3\frac{1}{2} \times \frac{1}{4}$ " Angle Iron.
Weight 154 lbs.

Write for Catalog and Price List on Entire Line

WHITNEY METAL TOOL CO.
59 Forbes Street, Rockford, Ill.

JUST 1 SET OF 12 Champion Expanding Mandrels

Will fill by thousandths any inside
diameter from $\frac{1}{2}$ " to $6\frac{1}{2}$ "



And any expansion within
that range is guaranteed

So Simple—only two parts.

So Handy—always ready for any job.

So Efficient—dependable for precision accuracy.

They are suitable for all classes of work, large or small, in all kinds of metal. They hold work of any length of bore and do not chatter. They are lighter, more easily handled, and keep truer than common mandrels. They release work easily. And the grinding of all parts after hardening insures the greatest accuracy. The cost is only about one-fifth that of solid arbors of equal range graduated by sixteenths.

Our Catalog also describes

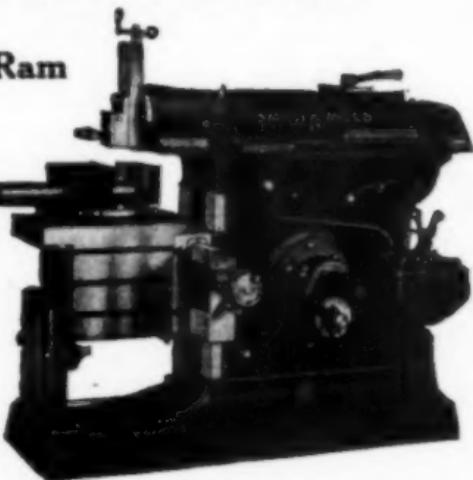
Champion Tool Holders, Champion Emery Wheel Dressers, Machinists' Vises and Clamps, etc., and our large line of practical, hard-to-beat Shop Furniture. Copy upon request.

The Western Tool & Mfg. Co.
SPRINGFIELD, OHIO

SHAPERS

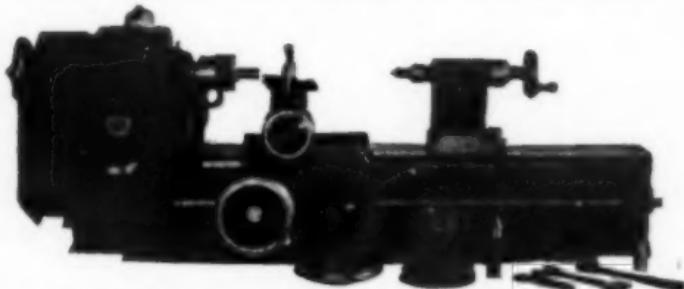
"V" Type Ram

12⁸, 14⁸, 16⁸,
20⁸, 25⁸ Gear
Box single pul-
ley or motor
drive, also 16⁸,
20⁸, 25⁸ B. G.
cone drive with
belt shifter. 32⁸
B. G. all geared
single pulley or
motor drive, all
sizes crank type.



The Smith & Mills Co., Cincinnati, O., U.S.A.

9" A. V. Carroll Geared Head Lathe



A 9" Geared Head Lathe for manufacturing plants, tool rooms, in-
dustrial plants, schools, service stations, homes and jobbing shops.

All steel gears, three changes in head and gear box. $\frac{1}{4}$ H. P. motor
direct connected. Cuts right or left hand threads. Furnished also
with three step cone belt drive.

Circular on request

A. V. Carroll Machine Tool Co.
Norwood, Cincinnati, Ohio

12 SPINDLE SPEEDS

Chrome Nickel Steel Gears



C. & J. 15/16-inch
Geared Head
Motor Drive Lathe

ASK FOR FURTHER DETAILS

Carroll & Jamieson Machine Tool Co.
Batavia, Ohio

The NEW HAMILTON



LATHES

are unsurpassed for strength and accuracy. Most convenient heavy duty quick change gear lathes for production and tool room use.

Single and double back gear with cone drive. Geared head with belt and motor drive.

Sizes 16"-18"-20"-22" and 24"

Send for new catalogue bulletin

The Hamilton Tool Co., Hamilton, Ohio

Automatic Toolroom Grinder



for correct sharpening of hobs, cutters, reamers, taps,—straight or spiral fluted—at enormous saving in time, as it indexes automatically from gash to gash.

Write for circular.

GEORGE SCHERR CO., 142 W. Liberty St., NEW YORK

STANDARDIZATION PAYS

Universal Joints

Steel and Bronze



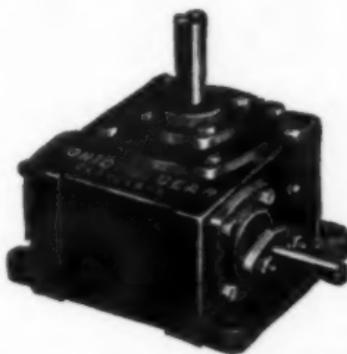
*Send for Circular giving specifications
and prices on complete line*

Boston Gear Works Sales Co.

Norfolk Downs, Quincy, Mass.

BOSTON NEW YORK PHILADELPHIA CLEVELAND CHICAGO

BOSTON GEARS



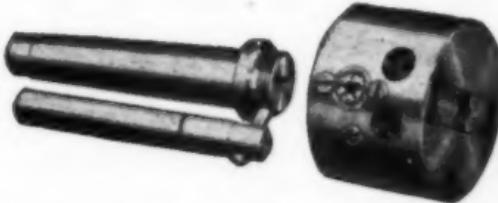
SPEED REDUCERS

$\frac{1}{8}$ to 2 Horse Power

The Ohio Gear Company

1333 East 179th Street, Cleveland, Ohio

For Economy in Precision Boring



**Flynn
Micrometer
Off-Set
Boring Heads**

A mechanically-perfect precision head of simple design and few parts.

All parts of heat-treated nickel steel.

This compact head has the least overhang of any head on the market, yielding utmost rigidity, and maximum table travel.

Made in a full range of sizes to fit all standard spindles and arbors. Send for descriptive bulletin and price list.

J. M. WATERSTON, 426 Woodward Ave., DETROIT, MICH.

GEARS

In Stock—Immediate Delivery



Gears, speed reducers, sprockets, thrust bearings, flexible couplings, pulleys, etc. A complete line is carried in our Chicago stock. Can also quote on special gears of any kind. Send us your blue prints and inquiries.

Write for Catalog No. 70

CHICAGO STOCK GEAR WORKS
105 South Jefferson Street, CHICAGO, ILL.

MIKRON



AUTOMATIC
SMALL PRECISION
Gear Hobbers
Gear Cutters
Pinion Hobbers
Thread Millers
Hob Grinders

Catalogs On Request

Triplex Machine Tool Corp.
50 Church St., New York City

Mass. Gears



ALL
TYPES

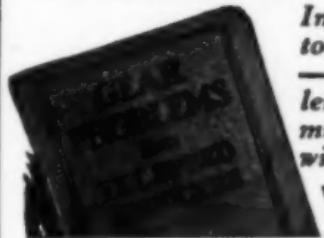


ANY
MATERIAL

Medium and Small Size Gears

MASSACHUSETTS GEAR & TOOL CO.
36 Nashua St., Woburn, Mass.

To Solve Your Gear Problems



Information clearly set forth
to answer your gear problems
—your speed reduction problems,
and general power transmission
questions. Complete
with prices.

Write for This Free Book

661 FOOTER BROS.
Pages GEAR & MACHINE CO.
Dept. 34, 111 No. Canal St., Chicago

—GEARS—

To Your Specifications

Medium and small sizes our specialty.
All Kinds and Materials.

**QUICK DELIVERY, QUALITY WORK
AND FAIR PRICES.**

Send in Your Inquiries

Taylor Mfg. Co., Inc.
35 Albany St., Cambridge, Mass.

The
**IMPROVED E-Z SET
BORING TOOL**



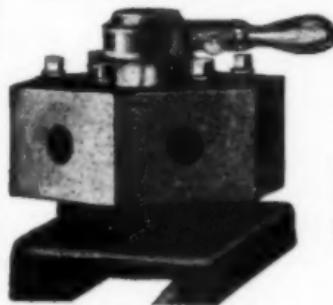
Adaptable to

Milling Machine, Boring Mill, Drill Press or
Screw Machine. *Tool or Production Work.*

Manufactured and sold by

The Co-Operative Machinery Company
7514 Indiana Ave., Cleveland, Ohio

STANDARDIZED LATHE TURRETS



8 Styles

12 Sizes

For any make or
size of Lathe old
or new.

STYLE "O"

Hexagon head, for round shank
tools and bolted on fixtures.

Ask for Circular No. 18

FAY & SCOTT
DEXTER, MAINE

E-Z THREAD DIAL

Thread cutting on engine lathes made easy, and at lower cost. Made in four sizes. Can be easily attached to all size lathes. A reliable device that will aid the operator in the work of cutting threads. With it threads can be cut close up to shoulders as easily as the ordinary thread.



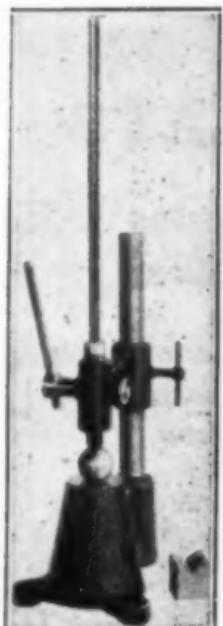
Eliminates
stopping or re-
versing the lathe.

The many
repeat orders
received
prove it is
satisfactory
after trial.

Can be
shipped
within
two days
after receipt
of order.

Sent on thirty
days' trial.
Send for latest
folder today.

**JAMES M. COLVEN, 20 Wolffe Street,
Yonkers, N. Y.**



Arnold Hardness Tester

A Portable Machine of Rugged Construction
for Reliable and Speedy Testing over a
Wide Range of Work

Without complicated or delicate mechanism, it is always ready for instant use.

Upkeep costs negligible. The ball is the only part subject to wear, and it can be changed in a fraction of a minute at a cost of less than one cent.

Measures hardness of raw materials in the stock room as well as finished parts, in the hands of the ordinary workman. Furnished with anvils for rounds, flats, irregular shapes and curved work.

*Worth more to you than its moderate cost
Write for more complete information*

H. H. ARNOLD CO., Inc., Rockland, Mass.

**Drill From 900 to 1200 Holes
per Hour**



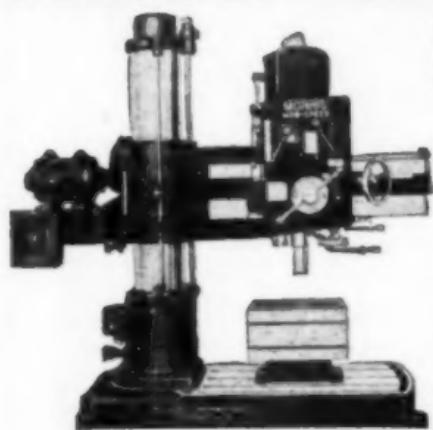
DETROIT
Semi-Automatic
Five Spindle
DRILLING MACHINE

This efficient production machine will turn out the work as fast as the operator can feed it stock. A pull of the lever locks or unlocks the fixtures instantly. Capacity No. 60 to $\frac{3}{8}$ " drills. If you are looking for speed, accuracy, simplicity and low cost operation—try the DETROIT!

Write for Descriptive Circular

Detroit Machine Tool Co.
5061 Woodward Ave., Detroit, Mich.

Morris Mor-Speed Radials



Built In
9-11-13⁸
Column Diameters

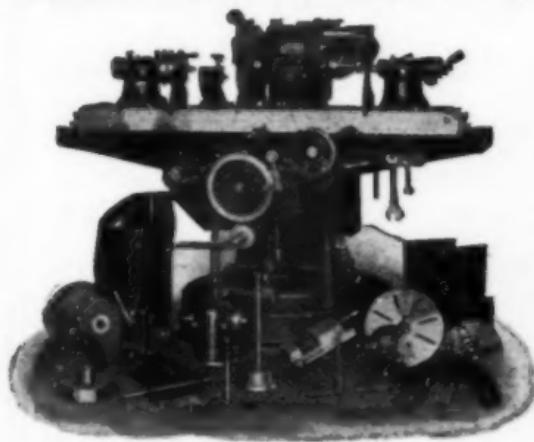
This is the last word in Radial Drill Design. Timken Bearing equipped. All speed and feed changes located in the head. Many other features.

Write for Catalog

The Morris Machine Tool Co.
CINCINNATI, OHIO

Represented by The Pratt & Whitney Co. Sales Agencies

SIX Grinders In ONE



12⁸x36⁸
Thompson
Universal
Grinder

Does every grinding operation required in the machine shop. Lowest cost work for plain, surface, die, cutter, edge and internal grinding. Equipped with the new auxiliary coarse cross feed for surface grinding.

Let us send you the Illustrated Booklet today!

The Thompson Grinder Company
1534 West Main St., 1-1 Springfield, Ohio

KEYSEATING

24" LONG

That is the length of keyseat for which we made a keyseating miller. The hole is $1\frac{1}{16}$ " diameter, keyseat $\frac{3}{8}$ " x $\frac{3}{16}$ ". How do you do your long length keyseating?

WRITE FOR CATALOG O

National Machine Tool Co.

2268 Spring Grove Ave., Cincinnati, O.



Invaluable in Emergencies

For Keyseating Shafting in Place



**The BURR
Portable
Keyseater**

Without dismantling shafting or tearing down equipment, it cuts a perfect keyway 12" long, anywhere, in any position, in shafts up to $5\frac{1}{2}$ dia.

Have one on hand for your next emergency job. It will save you a vast amount of trouble and expense. Made in seven sizes, hand or power driven.

Over 10,000 in use—order yours today

JOHN T. BURR & SON
422 Kent Ave., Brooklyn, N. Y.

BURKE

Light Milling That Pays

It's poor economy to use heavy milling equipment on small work. Power cost is too high, and the production can never reach the speed necessary to effect profits. The Burke No. 3 and No. 4 Millers are ideal for work of this kind—low-priced, fast and accurate. They return their cost promptly in savings alone, and keep the big machines on work within range.



No. 3,
\$155

ASK US FOR THE FULL DETAILS

The Burke Machine Tool Co.
297 E. 16th St., Conneaut, Ohio, U. S. A.



ANNOUNCING

The New

"Buffalo" **16 - Inch
DRILLS**

Floor or Bench Type
Will Drill $\frac{1}{8}$ " - $\frac{3}{8}$ " Holes in Cast Iron

These new 16-inch sensitive motor driven drills were developed to meet modern production needs.

SKF Ball Bearings are used throughout, assuring smooth, trouble-free performance.

The head has a travel of 8 1/2" inches while the spindle travel is unusually long, 7 inches.

Circular 2677 gives complete particulars

Buffalo Forge Co.
161 Mortimer St., Buffalo, N. Y.
In Canada: Canadian Blower & Forge Co.,
Ltd., Kitchener, Ont.

The Spirit Of the Times



is reflected in the speed and stamina of Rockford High Duty Punch Presses.

They are built to produce and maintain Hi-Production—and they do it.

Wide range of sizes and types.

Write today for new catalog

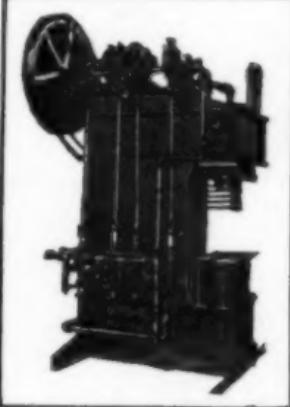
Rockford Iron Works

Rockford, Ill.

Hydraulic Pressure To Meet Your Specific Need

No matter what your need—whether for straightening, drifting, forming, broaching, etc., Lourie Presses can serve you in any capacity.

Perhaps you are encountering difficulty in forcing that can be accomplished more soundly and economically by hydraulic pressure. New uses for the Lourie Press are being found daily!



Steel Plate Construction

Our Engineering Dep't. welcomes the opportunity to suggest methods of applying hydraulic pressure. Ask for Bulletins 1301-2.

LOURIE MFG. CO., 565 W. Washington
Blvd., CHICAGO



Atlas Arbor Presses

For All Forging Operations

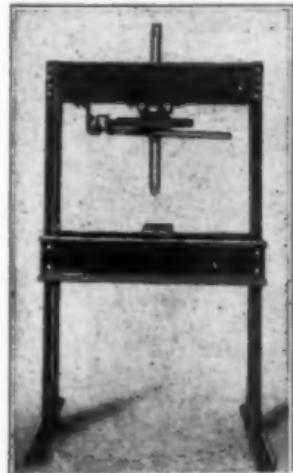
Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.

*Department B,
Kalamazoo, Michigan*

Fall River Screw Press



Here is a new screw press which is large enough and strong enough to take care of every job that comes into the average shop. It is built of high grade steel throughout, with special attention given to those parts subject to the hardest strain. 42 inches wide and table is 8 inches. Capable of exerting over 65 tons pressure.

Write for further information

Fall River Grinding & Machine Co.
JESSE ST., FALL RIVER, MASS.

NEVER LEAKS
SWIVELS FREELY
UNBREAKABLE
FOR ANY HOSE
CONNECTION



Guaranteed

Quick-As-Wink
HOSE COUPLINGS

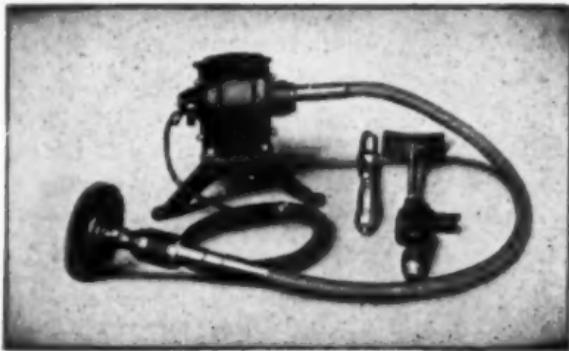
Send for Free Sample

Made of famous Tobin Bronze, Quick-As-Wink Hose Couplings resist the most severe usage—are not affected by mud, snow or ice—connect and disconnect by workman in 30 seconds but never accidentally. Guaranteed one year. Sizes $\frac{1}{8}$ " to 4". Get descriptive literature and prices.

C. B. HUNT & SON, Salem, Ohio
643 McKinley Avenue

The Whirlwind Buffer and Grinder

Will cut the cost on any unhandy
grinding or polishing job



Send for our latest bulletin

Stow Flexible Shaft Co.

3623-25 Brandywine St.,

Philadelphia, Pa.

The Best Since 1876

THE KELLERFLEX

A Flexible Shaft Machine of a Hundred Uses.

Built in sizes to meet all requirements.

Speeds up to 10,500.

For snagging, burring, lapping, buffing,
polishing, sanding, drilling,
wire-brushing, etc.

COMPLETE LINE OF ACCESSORIES

Rotary files, emery wheels, sanding
drums, wire brushes, etc.

Tell us your problem.

*Builders of the
Keller Automatic Die Cutting Machine.*

Keller Mech. Engineering Corp., **KME** 58A Washington St.
BROOKLYN, N. Y.

Mall "Jack of All Trades"

and

Masters Them Too

Cleaning
Scraping
Filing
Sanding
Polishing
Grinding
Sawing
Finishing

**Mall Tools are
powerful tools**

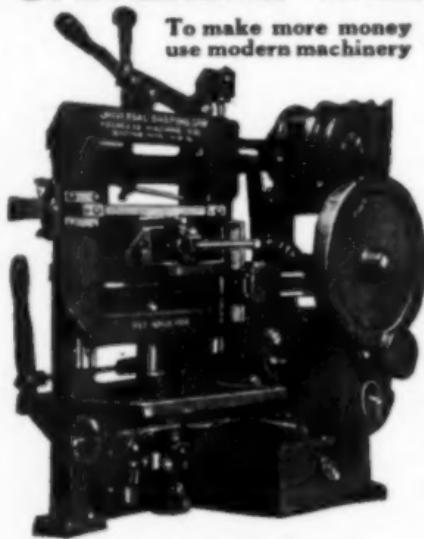
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Mall Tool Company,

7730 So. Chicago Ave.,
Chicago, Illinois

—PEERLESS— UNIVERSAL SHAPING SAW

To make more money
use modern machinery



Different Principles
Greater Efficiency
Give The Most Of—
Speed
Accuracy
Blade Economy

SIZES:
6¹/₂ x 16¹/₂—9¹/₂ x 19¹/₂—13¹/₂ x 13¹/₂

PEERLESS
HIGH SPEED HACK-SAWS
6¹/₂ x 16¹/₂ 9¹/₂ x 9¹/₂ 13¹/₂ x 16¹/₂
Sturdy—Efficient—Reliable
Peerless Machine Co.

1218 Sixteenth St.
Racine, Wisconsin

Write for Details

No Straining or Stretching

with the

HANDIEST RACKS

They're just the **RIGHT Size!**



The *Handiest Racks* are made in just one size—exactly right for the average height man to safely work to. It's "man-size"—your lathe or screw machine operator does not have to stretch or strain himself reaching for stock. *The Handiest Racks* keep various sizes of pipe, shafting and bar stock neatly piled and assorted either beside the machine or in some handy storage place—making it easily "get-at-able." Try them in your shop—you'll be glad you did.

Send for a Set Today. We ship on FREE TRIAL

Wm. S. Yohe Supply Co.
503 Mahoning Road, N. E., Canton, Ohio

Victor



Hack Saws

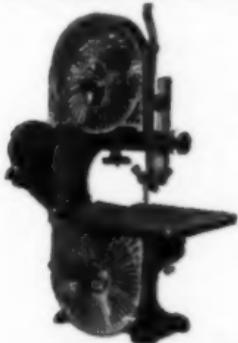
VICTOR High Speed Steel Hack Saw Blades

These new VICTOR HIGH SPEED STEEL HACK SAW BLADES so completely answer every need and cutting requirement that their performance is considered one of the greatest achievements in hack saw history.

The low cost of these blades is easily determined by the great number of cuttings of each blade.

A trial will convince you

VICTOR SAW WORKS, Inc., Middletown, N.Y.



For Strenuous Work

Some users of Racine Duplex Band Saws cut thousands of pieces in daily production with these sturdy tools.

All Racine Machines are built to meet exacting requirements. They are made in different types for every kind of metal cutting job.

Write for valuable metal cutting chart and other information on this time and money saving equipment. No cost or obligation.

Racine Tool & Machine Co.
1429 Junction Ave., Racine, Wis.

RACINE

HIGH-SPEED
METAL CUTTING MACHINES

**Analysis of Circulation of
HITCHCOCK'S MACHINE TOOL BLUE BOOK**
By Dun and Bradstreet Ratings

(Corrected to August 1st, 1929)

To domestic concerns, and superintendents, works managers, production engineers, etc., in such concerns rated at—

| | |
|--|------------|
| Exceeding \$1,000,000..... | 1,883 |
| \$500,000 to \$1,000,000..... | 1,426 |
| \$300,000 to \$ 500,000..... | 1,348 |
| \$200,000 to \$ 300,000..... | 1,212 |
| \$125,000 to \$ 200,000..... | 1,675 |
| \$ 75,000 to \$ 125,000..... | 1,786 |
| \$ 50,000 to \$ 75,000..... | 1,507 |
| \$ 20,000 to \$ 50,000..... | 3,167 |
| \$ 10,000 to \$ 20,000..... | 2,084 |
| \$ 5,000 to \$ 10,000..... | 1,777 |
| TOTAL to Private Concerns of over \$5,000... | 17,865 |
| Steam and Street Railway Mechanical and Purchasing Officials, Government and Municipal Plants, Technical Schools, Selected Foreign Dealers and Users, Etc.,..... | 2,927 |
| TOTAL to Buyers of Known Responsibility... | 20,792 |
| *Concerns quoted in Dun or Bradstreet, but without Capital Rating..... | 2,652 |
| Concerns not yet in either Dun or Bradstreet, which includes new industries..... | 1,514 |
| Concerns rated \$3,000 to \$5,000..... | 620 |
| TOTAL CIRCULATION..... | 25,578 |

*This group includes a considerable number of large concerns, and some small ones of high credit, whose capital rating is not given by either of the commercial agencies.

PEERLESS

For Flat
Work



8 Sizes

Write for Circular

PEERLESS SURFACING MACHINE CO., Inc.
TROY, N. Y.

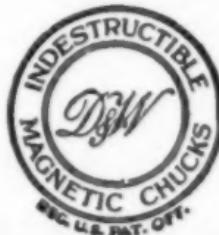
USE "D. & W." DEMAGNETIZERS!



Of unique construc-
tion, they are
simple, dependable

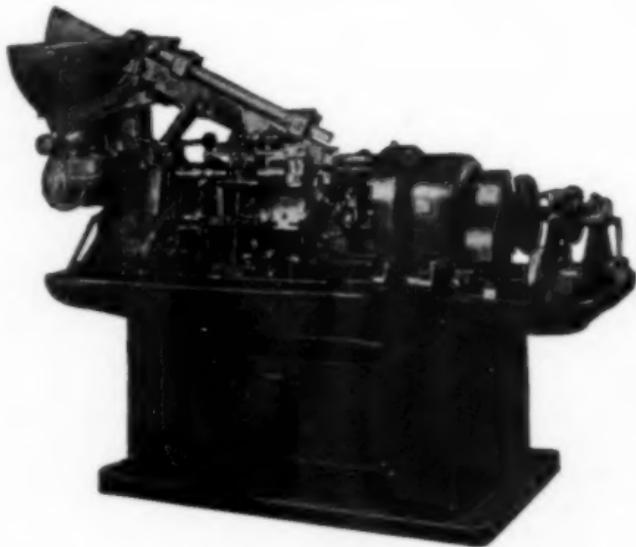
A rigid continuous
"U" shaped core,
made of the highest
grade laminated
electrical steel, is
energized by two
stationary coils, thru which alternating
current is passed. Construction is similar
to d. c. machine, and in addition con-
taining a small converter.

Have you any special problems in con-
nection with the use of Magnetic Chucks?
We will gladly investigate and report on
same, or design a special chuck for your
particular needs. *Write us today.*



J. & H. Electric Co., 200 Richmond St.,
Providence, R. I.

Combined Automatic Pointing and Threading Machines



For Bolts and Cap Screws
Capacity— $3/16" \times 1" \text{ Diameter}$
 $1" \text{ to } 6" \text{ Long}$

Write for Full Info

THE ECONOMY ENGINEERING

Automatic Shaving Machines



Shaves top and underneath
head of Cap Screws
Capacity $\frac{1}{4}$ " x $\frac{3}{4}$ " Diameter
 $\frac{3}{4}$ " to $5\frac{1}{2}$ " Long

ll Information

COMPANY, - Willoughby, Ohio

The HANDNIB for Experimental Work

Cut out templates—
Cut out trial blanks—
Nibble sheet metal
into any irregular
shape.

The Handnib will
do the above in **one-tenth** the usual time.

Write for a Folder!



National Machine Tool Co.
1536B Clark St., Racine, Wis.

ARMSTRONG

TRADE NAME REGISTERED U. S. OFFICE

Drop Forged WRENCHES



Forged from selected steel that gives both stiffness and strength. Improved designs—stronger, balanced. 29 types. All practical sizes. All standard openings accurately milled with just enough clearance. Blanks in stock for rush orders with special openings. Singly or in matched sets. *Write for Catalog W-27.*

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
308 N. Francisco Ave., Chicago, U. S. A.





Drilling Cost Cut 76%

A MIDWEST lamp manufacturer, using carbon drills, was confronted with the problem of reducing hole production cost and speeding up hole production.

On a certain job, run through in 10,000-piece lots, carbon drills averaged 780 holes per grind, 24 grinds per drill, and total drill life of 20,000 holes—with direct drill cost of 36c per 10,000 piece lot.

CLE-FORGE ^{HIGH SPEED} DRILLS

TRADE MARK REG. U. S. PAT. OFF.

were then tried. They averaged 10,000 holes per grind, 19 grinds, and total drill life of 200,000 holes. Although costing, per drill, more than twice as much as the carbon drills, Cle-Forge showed a direct drill cost of only 8½c per 10,000 piece lot—demonstrating a net cost reduction of over 76%, while materially speeding up production. The net annual saving was \$381.06—or more than 2½ times the actual cost of the Cle-Forge Drills used!

*This complete story is told
in Digest No. 59. Shall
we send you a copy—
without obligation?*

CLEVELAND

TRADE MARK REG. U. S. PAT. OFF. 1912. MFG. BY CLE-
V. CO. CLEVELAND, OHIO

**TWIST DRILL
COMPANY
CLEVELAND,
NEW YORK—CHICAGO—DETROIT
SAN FRANCISCO**

Before any Cut

LeBlond Grinders=
Sharp Cutters

Sharp Cutters=
Maximum Production

Maximum Production=
Profit

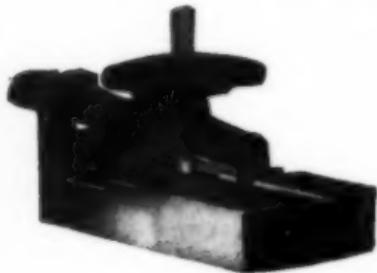
The Universal Cutter Grinder
that Meets the Demands of
the Modern Tool Room.

THE R. K. LeBLOND MACHINE TOOL CO.
CINCINNATI, OHIO



The K-O Vise Clamp

New—Practical—Tested



Has no equal for variety of purposes, or uses, in the tool room or machine shop.

Quick Acting
Simple—Accurate

The Indispensable Tool

The K-O Vise-Clamp is a combination of a Drill Press Vise, Toolmakers' Clamps, V Blocks, Drill Jig and Angle Plate. Illustration shows small round clamped in "V" groove, for drilling through its diameter. The round, when clamped in the groove "stays put." With the ordinary vise a parallel would be necessary—with the K-O none is required. Two sizes for fast, accurate work of great variety, in all positions.

The K-O Adjustable U-Clamp

The Old Style U-Clamp with NEW Adjustable Feature. Quick—Positive—Dependable—Guaranteed. Costs no more.



No Blocking Required

Rear of clamp is easily and quickly adjusted to level of work to be clamped by merely turning the ratchet, one way or the other. Step elevations graduated by 32nds of an inch.

Our Vises and Clamps are made in various sizes—Send for Catalog.

Cayo Manufacturing Co.

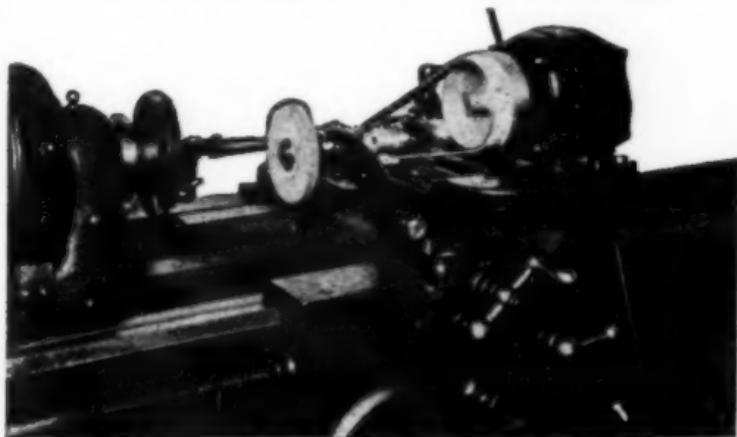
Benton Harbor, Mich.

In addition to the above, we manufacture Adjustable Shop Stools and Adjustable Shop Stands to hold parts to be run through Punch Presses.

"ATLANTIC"

Precision Lathe Grinder

For External, Internal and Surface Grinding
on any Lathe from 14-inch swing up



"Not a Cent for Repairs"

"We find your machine far superior to other lathe grinders. The fact that it has not cost us a single cent for repairs, or has not needed any attention in the three years we have used it, also speaks well for your machine." (Name on request).

This statement, taken from a letter of a prominent manufacturer, shows that the "Atlantic's" claim of durability and economical operation "stands up" under actual working conditions. These characteristics, plus its accuracy, absence of chatter marks and remarkable versatility, makes the "Atlantic" your best buy. And its cost is *one-third less* than its nearest competitor.

THREE DAYS' TRIAL—NO EXPENSE TO YOU

*Write for Illustrated Leaflet on
"WHAT OTHERS SAY"*

The Kern Electric & Eng. Co., Inc.
1092 So. Orange St., Newark, N. J.

Test This New PRODUCTION CHAIR at Our Risk



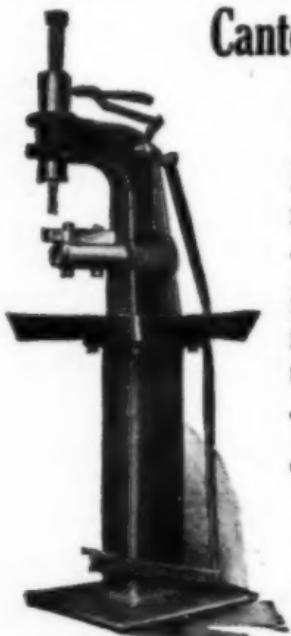
The Chicago Wire Chair Co.
613 No. LaSalle St., Chicago, Ill.
Eastern Office: 119 E. 27th St., New York City

Our product is sold strictly on its merits. You cannot appreciate its splendid usefulness and low cost until you see it, use it, compare it under your own actual service conditions. We do not ask that you buy our strong, sturdy Bridgebilt chairs. Just try one for strength, comfort and the same general wear and tear uses you would expect of any product. We stand or fall on your decision. Pin your business card to this coupon TODAY. Mark it and mail direct. We ship sample at once. No obligation to buy. Do it NOW.

FREE TRIAL

- Let me try a Production Chair
Graduated heights from 18-30"
- Let me try a Bridgebilt stool
Height...in. (18-24) (24-30)
- Send me Free Bridgebilt Catalog

Canter Pedestal and Bench Pneumatic Riveters



Require no adjustment for rivets of different lengths.

The advancing type inner cylinder provides ample room for placing the work between the dies.

The smaller sizes have a speed of 5000 blows per minute.

*We also build a complete line of
Chipping and Calking Hammers*

Canter Pneumatic Co.

1720-9th St., S. W., Canton, Ohio

Vanderbeek Universal Joints



—represent the practical refinements of 25 years experience in manufacturing Universal Joints. All parts are generously sized, fully protected against dirt, and are practically self-oiling. Exceptionally strong, they transmit full power up to 70°.

Vanderbeek Joints are in daily use on thousands of machines.

Write today for our Descriptive Catalog.

American Tool Works, Inc.
Hartford, Conn., U. S. A.



A RIVETING PROBLEM? LET GRANT SOLVE IT!



Many an awkward riveting job has had to be done by hand until they investigated the

GRANT ROTARY RIVET SPINNER

It is especially adapted to handling pieces of awkward shape and to work in hard-to-get-at places. And besides

It Is Noiseless

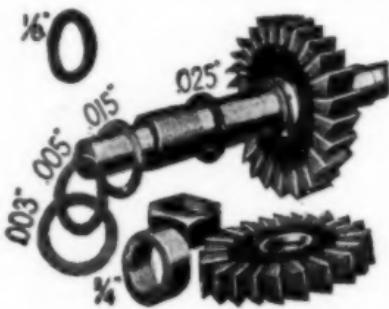
All work is uniform, as tight or loose as desired, with highly polished heads; its speed is a rivet per second, and it may be operated by low cost help.

Write for Catalog and send us sample of your most difficult work for riveting

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Steel Spacing Washers—

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



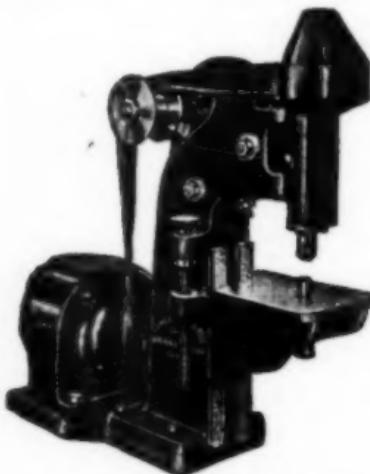
Stock sizes for arbors of following diameters: $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{5}{8}$, $1\frac{3}{4}$, $1\frac{7}{8}$, 2 , $2\frac{1}{4}$, $2\frac{1}{2}$, 3 , $3\frac{1}{2}$ and 4 in. and larger.

Stock thicknesses: .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .032, .047, .063, .093 and .125 inch.

Other thicknesses up to 3.000* made to order, with keyways if so ordered.

Ask us to send samples; you'll like them

Detroit Stamping Company
3443 West Fort St., Detroit, Mich.



For Your Small RIVETING The Linley Rotary RIVET SPINNER

Covers a wide field of riveting.

Simple in design but—

Rigid and powerful.

Guaranteed to give satisfaction.

Get the full details before buying
a riveter

WE ALSO
MANUFACTURE

**EQUIPMENT FOR ROTARY
RIVET SPINNING MACHINES**

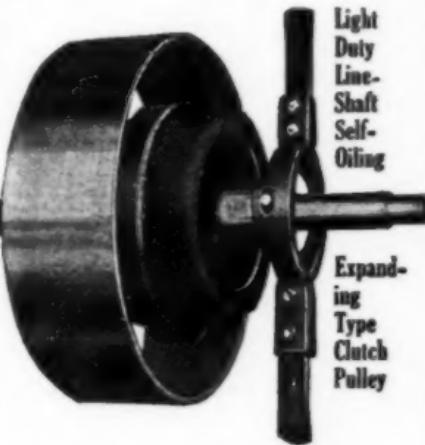
SEND FOR DESCRIPTIVE FOLDER

Linley Brothers Co., 579 Fairfield Ave.,
Bridgeport, Conn.

Edgemont Type B Friction Clutch

The Type B Friction Clutch is well adapted for line-shaft, counter-shaft and many other drives. It will give good service and is simple and easy to operate. Made in pulleys, extended sleeves and cut-off couplings.

Write us now about your clutch needs



Edgemont Machine Co., Inc., **DAYTON OHIO**

Something to Move? —



Heavy? Awkward?
Hard to Get At?
That's when you need—and
appreciate—the

"CANTON" Portable Crane, Hoist and Truck

It will reach into otherwise inaccessible places, pick up any bulky, unwieldy object weighing up to 6000 lbs. with ease, and transport it from one end of the shop to the other. One man can operate it—no need to call 6 to 10 men from their work to risk torn ligaments. Safety Friction Load Brake can be added to new or old 'Cantons' at small extra cost.

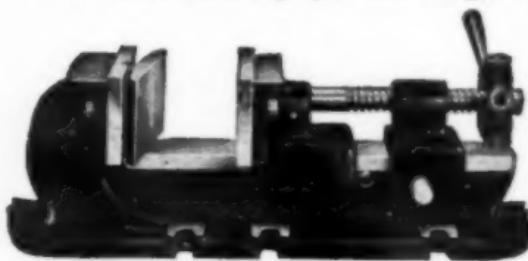
*The several sizes are
shown in Booklet E-8*

CANTON FOUNDRY & MACHINE CO., Canton, Ohio

New York Office: 101 West 31st Street

Gem Drill Press Vise

With Automatic, Quick-Acting, Powerful Grip

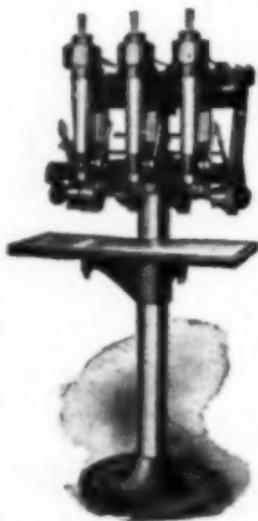


*Holds
Irregular
Pieces
Firmly*

The jaws are made of steel, hardened and ground, with horizontal and vertical "V" grooves. The independent swivel jaw holds taper and irregular work with a bull-dog grip. Its quick action, powerful grip and adaptability make it *the most efficient vise on the market*. Made in three sizes. Write today for folder, picturing its use in drilling and milling operations.

J. E. Martin Tool & Die Works, 528 W. State St., Springfield, O.

Sigourney Sensitive Drills



Plain or Ball Bearing
Belt or Motor Drive

Sigourney Sensitive Drills are *quality products*, extremely sensitive, accurate and durable, with all parts interchangeable.

The illustration shows a Sigourney ball bearing, high speed drill press, made with one to four spindles, which *operates up to 5000 R. P. M.* The ball bearings are self-aligning, in double row.

Write for circulars and prices

Sigourney Tool Co.
Hartford, Conn., U. S. A.



A Real Economy In Drilling Costs

Transform your single spindle drill into an accurate multiple driller.

Utilizing the feeds and speeds that you use for drilling one hole, you can drill two to six holes.

A special double adjustment permits any pattern of multiple drilling. We can design special heads with adjustable or fixed spindles.

If you send us a layout of your work we will show you how to cut your costs

The United States Drill Head Co., 1952 W. Sixth St.,
CINCINNATI, O.

Michigan Agents—National Sales Engineering Corp., Detroit, Mich.

The U. S.— A 14" Sensitive Floor Drill

Designed in a machine tool shop to meet the need for a drill with a capacity up to $\frac{1}{2}$ " that will turn out accurate, rapid work at the least cost.

Price with motor,
switch and belts - **\$115**

Or with Counter-
shaft for Belt Drive **\$70**

Three speeds; spindle ground to size with ball thrust bearing, counterbalanced by weight inside column; vertical adjustment to head; tables adjustable to any type of work. Write for folder, or better still send us your order.

The U. S. Machine Tool Co.
1952 W. 6th St., Cincinnati, Ohio



ACME DOWEL PINS



Standard hardened and ground to within .0002" over listed sizes. Also carried oversize .001" for use in repair work, etc. Ask for Bulletin No. 551.

ACME DRILL BUSHINGS

Bulletin No. 501 describes and illustrates the various types and standard sizes of ACME Drill Bushings. Special sizes made to your order.

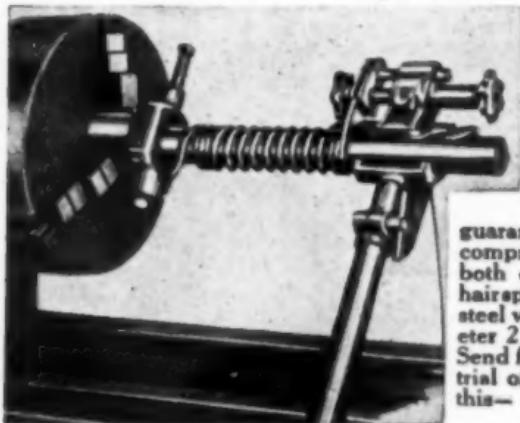
Bulletins and special low prices sent upon request.



ACME INDUSTRIAL CO.
419 Carpenter St.,

Chicago, Ill.

Wind Your Own Springs With this *Superior Tool*



ON LATHE OR VISE

The Right Springs for any job can be wound perfect and uniform. Pitch adjusting screw with graduations guarantees correct tension or compression—close pitch on both ends. Capacity—hairspring to $\frac{1}{4}$ -in. tempered steel wire, maximum diameter 2 in. Rated concerns: Send for our special 5 days trial offer and low price on this—

Handy Long Life Utility Tool

Superior Spring Winding Tool Co.
776 Third Street, Milwaukee, Wis.

Anderson Improved Balancing Ways

Ever-Ready—Sensitive—Reliable



They need no adjustment, no centering, and no special leveling. The rotating discs are made of chilled iron, run in specially designed ball bearings and are extremely sensitive.

Each of the six sizes has no equal for balancing anything that revolves with its dimensions.

| "Swing" | 20" | 40" | 60" | 72" | 96" | 72" |
|---------------------------------------|------|------|------|------|-------|-------|
| Greatest distance bet. standards..... | 20" | 30" | 30" | 66" | 88" | 20" |
| Capacity in lbs..... | 1000 | 2000 | 2000 | 5000 | 10000 | 24000 |
| Approx. shipping weight..... | 45 | 90 | 150 | 350 | 650 | 24000 |
| Code..... | Read | Bid | Bis | Bib | Bes | |

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.

1915 Kishwaukee St., Rockford, Ill.

A Real Time Saver—

Springfield
Straightening
Press—



Made in
3 Sizes

Invaluable in
Tool Room and
Shop; also for
Straightening
Crank, Cam
Shafts, etc.

The arrangement of the *Springfield Straightening Press* is the *acme of convenience*.

Any length work, rough, or finished, within the range of its centers may be tested and straightened without unnecessary walking from lathe to press. Springfield is accurate and speedy. Its service in aligning sprung tools is unexcelled. A Springfield quality product.

Our folder will illustrate its many uses

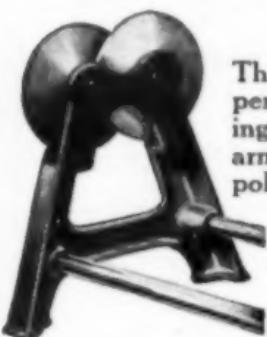
The Springfield Machine Tool Company

633 West Southern Avenue, SPRINGFIELD, OHIO

We also manufacture Engine Lathes and Shapers

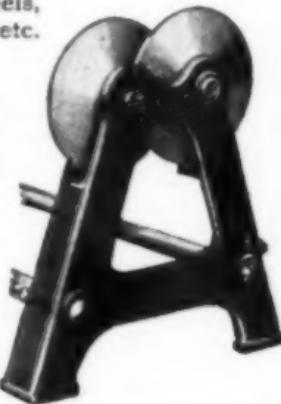
Twentieth Century Balancing Tool

Always on the level



The most practical, sensitive and inexpensive device manufactured for balancing pulleys, cones, armatures, fly wheels, polishing wheels, etc.

Will set anywhere and is easily portable. In sizes up to 24,000 pounds capacity.



Ask for the Bulletin

Sundstrand Machine Tool Co.
Rockford, Ill.



"STANDARD" Dial Indicator

Simple—Sturdy

The few parts, simple construction and sturdy build enable the "Standard" Dial Indicator to excel in service. The finest gear and pinions made by a new process, insure accuracy; large figures, distinct graduation, no shadows, insure easy reading; dirt and moisture proof case insures long life. 2" and 2½" face.

Send for Catalog showing entire "Standard" Line

STANDARD GAGE COMPANY, INC.
Poughkeepsie, New York



Ames Gauges for accuracy

Micrometer Dial Gauges
in a wide variety of dial
markings to fit all re-
quirements.

Upright Dial Gauges
with mountings for
testing parts speedily.

B. C. Ames Co.
Waltham, Mass.
902 Stephenson Bldg., Detroit



FEDERAL Dial Indicator MODEL "30"

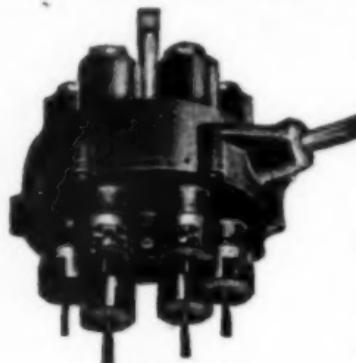
This Model is particularly adapted for extremely close work as it is graduated so that .0001" reads like .001" on the ordinary indicator. **A Few Federal Exclusive Features.** Jewel bearings, solid bronze alloy die cast case, with hylo finish, stem cast integral with case eliminating absolutely all solder, stainless steel bushings in stem. The rack as well as all exposed parts are chromium plated assuring years of dependable service.

*Send for our complete catalogue showing
over 45 different types of gauges.*

Federal Products Corporation
PROVIDENCE, R. I.

Western Branch: 7338 Woodward Ave., Detroit, Mich.

DORMAN Multiple Spindle Drill Heads and Tappers



DORMAN
Multiple Spindle Tappers
Automatic Reverse

Keep Your Drilling & Tapping Up-To-Date

Dorman Multiple Spindle Tools have been in extensive use for 15 years. One of the largest manufacturing concerns in New Jersey, of world renown, using Dorman Tappers and Drill Heads for the last eight years has this to say of Dorman tools: "They produce and stand the gaff." All fixed centers.

*Send in Your Blue Prints
for Quotations*

JOHN H. DORMAN
5148-52 Hudson Blvd., West, West New York, N. J.

IF YOU TAP HOLES—



Why not have the feel of the tap right at your finger tips? A tap is a delicate tool. The Ettco Tapping Attachment taps delicately—with increased speed—That's the answer.

THE ETTCO Tapping Attachment

is simple—nothing to adjust—if the tap sticks or hits bottom the Etco slips—the same action coming out. No clash of a positive clutch—just the smooth action of the patented leather lined cone clutch.

Sensitive—speedy—satisfactory.

| | | |
|--------------------------|---|---------|
| No. 1—Tapping Attachment | $\frac{3}{16}$ " in steel, $\frac{1}{4}$ " in C. L. | \$35.00 |
| No. 2—Tapping Attachment | $\frac{7}{16}$ " in steel, $\frac{5}{8}$ " in C. L. | 50.00 |
| No. 3—Tapping Attachment | $\frac{1}{2}$ " in steel, $\frac{7}{8}$ " in C. L. | 80.00 |

Eastern Tube & Tool Co., Inc., 600 Johnson Ave., BROOKLYN, N. Y.

"PROCUNIER"



SAFETY TAPPING ATTACHMENT with the "Proculnier" Safety Friction and "Double-Jaw" tap holder gives *greater accuracy less tap breakage*, and more tapped holes to the dollar.

All Hardened Gears
Special Hardened and Treated Clutches
Balanced Reversing Mechanism

With the "Proculnier" Safety Friction Device blind holes can be tapped just as easily as through holes, and without danger of breakage.

Don't hesitate to ask for a free trial.

Catalogue 102-B gives complete details of "PROCUNIER" Tapping Devices, Quick Change Chucks, Stud Setters and Bench Tapping Machines.

Proculnier Safety Chuck Co.
14 So. Clinton St., CHICAGO, ILL.

No. 1 ALTO Motor Driven High Speed Tapping Machine

A Low Cost Hustler
Complete with Motor
Ready to Attach

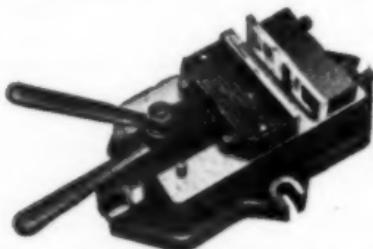


Its Main Points are—(1), High speed, with reverse three times as fast; (2), compact and complete, ready to attach to light socket; (3), so simple in construction that we can sell this high-grade tapper at a low price. Capacity $\frac{3}{16}$ " in brass, $\frac{7}{32}$ " in steel. We also make larger motor driven Tapping Machines.

Write for descriptive circular and moderate price

The Alto Mfg. Co., 1647-51 Wolfram St.
Chicago, Ill.

The Most POWERFUL Vise Made
Hartford Milling Vise



| | |
|-----------------------|---------|
| Jaw width | 5" |
| Jaw depth | 1 1/4" |
| Maximum opening | 3 1/2" |
| Weight | 40 lbs. |

Also made in the swivel-jaw type with hard or soft jaws, maximum opening 2 1/4".

The "Hartford" is designed to give the utmost in service. A lower cam-faced handle gives required quick opening and return—while a top eccentric lever-handle furnishes tremendous binding power. You can rely on "Hartford" to survive the hardest usage. Its steel parts are drop forged, hardened and ground—its base is made of special iron.

Send for descriptive catalog illustrating its usefulness

We also Build Machinery on a Contract Basis and Design and Develop Special Automatic Machinery—Gears Cut to Order.

Hartford Special Machinery Co., 285 Homestead Ave.,
HARTFORD, CONN.



**Punch MORE Holes
with
T. H. L. PUNCHES**

T. H. L. Punches will produce more than the average number of holes, for they are made of the highest grade, dependable tool steel and are hardened and tempered—right. Our experience of nearly 40 years in making of punches assures you satisfactory, continuous and profitable production.

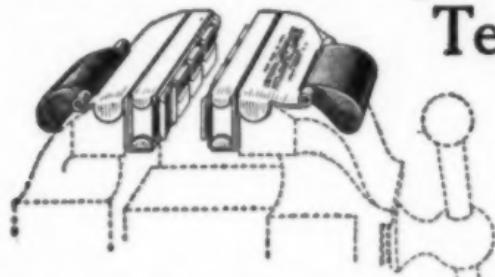
A Trial Order

will convince you. We carry large stocks of regular sizes for immediate delivery—special sizes quickly made.

Write for a copy of our Catalog

T. H. Lewthwaite Machine Co.
311 East 47th St., (Est. 1890) New York City

P. & K. Vise-Grips save Time, Temper and Money



Hold any shape—round, square, curved, triangular, tapered--without abnormal pressure. No marring or jamming. No springs or complicated parts.

Sensitive as Human Hands — with a Bull Dog Grip

P. & K. Vise Grips, consist of a pair of detachable compensating jaws that can be used on any vise to hold any shape. On or off in a second.

Two sizes: No. 4—4" size, fits vises up to 4" \$6.00.
No. 5—5" size, fits vises up to 6" \$6.75.

FREE TRIAL OFFER: Try them out in Your Shop for 10 Days.

Pitts & Kitts Mfg. & Supply Co.
91 Seventh Ave., New York, N. Y.

(Distributors wanted in all sections of U. S. A. Write for terms)

SAMSON Machine Vises



Precision
Vises at
LOW PRICES

For Milling Machines, Drill Presses, Shapers,
Universal Tool Makers, etc.

These high grade precision vises embody a number of features that cannot be found in any other vise at anywhere near the same price. Covered adjustable grooved ways prevents raising or buckling; counter pressure is taken by *ball thrust bearing*; jaws are hardened ground steel; spindle toughest steel; nut phosphor bronze. Milling Machine Vises come in Swivel or Plain Styles.

Write for Details and Low Prices

H. J. HAGEN, 109 Lafayette Street,
NEW YORK, N. Y.

GITS BROS.

Better Oilers

287 Styles & Sizes



GITS BROS MFG. CO.
1940 S. KILBOURN Chicago

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The Blue Book has been the means of bringing many buyers and sellers together, to their mutual profit and satisfaction.

HITCHCOCK PUBLISHING CO.
508 S. Dearborn St., Chicago

OIL FROM LONG CURLY TURNINGS

The Tolhurst 40" and 48" chip wringers will handle long curly turnings just as readily as fine chips.

These large capacity units save money while saving cutting oil. One 40" machine will replace several small ones and four 48" machines easily handle two car-loads per day.

Write for Catalog

Tolhurst Machine Works, Inc.
TROY, N. Y.

New York Office: 30 Church Street
Chicago Office: 8 So. Dearborn St.



TUCKER OIL CUPS and OIL HOLE COVERS

COMPACT — DURABLE — ECONOMICAL
A Style and Size for Every Purpose

Easily closed by twist of fingers or self-closing. This feature means a dust- and grit-tight cup and prevents oil throwing during machine operation.



Hercules Shears and Rod Cutters

are the most powerful hand tools on the market. Made in several styles for bench and floor mounting. Capacities: Rod 1-8 to 3-4 in. diameter; sheet 1-16 to 8-16 in. thickness.

Send for Catalog No. 13 and Samples

W. W. & C. F. TUCKER, INC.
612 Capitol Ave., Hartford, Conn.

FOREIGN AGENTS: Fenwick Freres & Co., Paris, France.

Buck & Hickman Ltd., London, England.

Alfred Herbert Ltd., Yokohama, Japan.



Die Making Machines

save an average of 50%

Dies, templets, experimental parts, gages and the like can be sawed, filed and lapped on the Oliver of Adrian Die Making Machine much easier, more accurately and in a fraction of the time ordinarily required for handwork.

We also manufacture a line of

Point Thinner.

Drillpointers.

Cutter Grinders



Send
for
Bulletins

Oliver Instrument Company, 1408 Maumee St.,
ADRIAN, MICH.

Danly Machine Specialties, Inc.
2116 S. 52nd Avenue, Chicago

Detroit, Mich., 1549 Temple Ave.

Long Island City, N. Y., 36-12 34th St.

Reduce Waste and Spoilage



With the New
"Autex" Extension Reel

The "Autex" follows the trained hands of the workmen enabling them to turn out more and better work. If the workmen can not see well, they can not maintain high speed production and avoid excess waste of material. Accidents are reduced to the minimum and in many ways the "Autex" pays for itself many times over.

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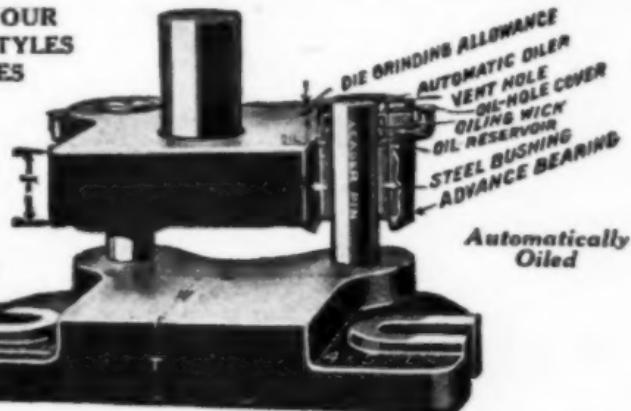
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Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal

Brown & Sharpe Mfg. Co., Providence, R. I.
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Milling Machines, Vertical

Brown & Sharpe Mfg. Co., Providence, R. I.
Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Heed-Pratt Corp., Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.

Name Plates, Etched and Stamped

Schweber Stamp Co., Bridgeport, Conn.

Nut Setters, Electric

Vin Tool Co., 149 Broadway, New York

Oil Cups

Gits Bros. Mfg. Co., 1940 S. Kilbourn Ave.,
Tucker, W. W. & C. F., Hartford, Conn.

Chicago

Oil Extractors

Tolhurst Machine Works, Troy, N. Y.

Pins, Leader And Dowel

Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago
Danly Machine Specialties, Inc., 2116 S. 52nd Ave., Chicago

Pipe Beading Machines

Pedrick Tool & Machine Co., Philadelphia

Planers, Valve Seat, Portable

Pedrick Tool & Machine Co., Philadelphia

Planing Machines

Cincinnati Planer Co., Cincinnati, Ohio
Cleveland Planer Co., Cleveland, Ohio

Point Thinning Machines

Oliver Instrument Co., Adrian, Mich.

Polishing and Buffing Machines

Cincinnati Electrical Tool Co., Cincinnati, O.
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Hill-Curtiss Co., Kalamazoo, Mich.
Hissay-Wolff Machine Co., Cincinnati, O.
Mail Tool Co., 7725 S. Chicago Ave., Chicago
Nedco Company, Natick, Mass.
New Britain Machine Co., New Britain, Conn.
Standard Electrical Tool Co., Cincinnati, O.

Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.
Lourie Mfg. Co., 565 Washington, Chicago
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Sheldan Machine Co., 3233 Cottage Grove Ave., Chicago

Wilson, R. E., Buffalo, N. Y.

Presses, Bracing

Lourie Mfg. Co., 565 Washington, Chicago

Presses, Drawing

Lourie Mfg. Co., 565 Washington, Chicago

Presses, Flanging

Lourie Mfg. Co., 565 Washington, Chicago

Presses, Foot

Rockford Iron Works, Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

Presses, Forging

Lourie Mfg. Co., 565 Washington, Chicago

Presses, Forming

Lourie Mfg. Co., 565 Washington, Chicago

Presses, Power

Hendley & Whittmore Co., Beloit, Wis.
Lourie Mfg. Co., 565 Washington, Chicago
Rockford Iron Works, Rockford, Ill.

Presses, Punch

Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
Rockford Iron Works, Rockford, Ill.

Presses, Screw

Fall River Grinding & Machine Co., Fall River, Mass.
Jarecki Mch. & T. Co., Grand Rapids, Mich.

Presses, Whee

Lourie Mfg. Co., 565 Washington, Chicago

Profiling Machines

Frew Machine Co., Philadelphia, Pa.
Oliver Instrument Co., Adrian, Mich.

Pulley Machinery

Avey Drilling Machine Co., Cincinnati

Pulleys, Iron, Solid and Split

Conway Clutch Co., Cincinnati, O.
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago

Pumps, Coolant

Public Specialties Co., Blairstown, O.

Pumps, Hydraulic

Lourie Mfg. Co., 565 Washington, Chicago

Pumps, Lubricant

Ruthman Machinery Co., Cincinnati, O.

Punch Press Feeds

Rockford Iron Works, Rockford, Ill.

Punch, Shear and Bender, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago

Punches, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago

Hendley & Whittmore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.

Rockford Iron Works, Rockford, Ill.

Punches, Power

Hendley & Whittmore Co., Beloit, Wis.

Punches and Dies

Hendley & Whittmore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.

Rockford Iron Works, Rockford, Ill.

Punches and Shears

Buffalo Forge Co., Buffalo, N. Y.
Excelsior Tool & Mch. Co., E. St. Louis, Ill.

Pyrameters

Wilson-Masulen Co., Inc., 785 E. 14th St., New York

Racks, Bar Stock

New Britain Machine Co., New Britain, Conn.
Yoho Supply Co., Wm. S., Canton, O.

Reamers, Adjustable

Cleveland Twist Drill Co., Cleveland, Ohio.
Schellenbach-Hunt Tool Co., Cincinnati, O.

Reamer Holders

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Reels, Extension

Cincinnati Specialty Mfg. Co., Cincinnati, O.

Riveters, Multiple Spindle

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveting Machine Equipment

Limley Bros. Co., Bridgeport, Conn.

Classified Finding Index

Riveting Machines
Canton Pneumatic Co., Canton, Ohio
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Rod Cutters

Armstrong-Blum Mfg. Co., 841 N. Francisco Av., Chicago
Hendley & Whitemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H. 811 E. 47th, N. Y.
Tucker, W. W. & C. F., Inc., Hartford, Conn.

Rotary Tables, Hand Feed

Stevens Inc., John B., 27 Cleveland Place, New York

Safety Steps

Atlantic Co., Box 133, Sta. B., Brooklyn, N. Y.
Saw Sharpening Machines
Hether Bros. Saw Mfg. Co., Rochester, N. Y.
Wardwell Mfg. Co., Cleveland, O.

Saws, Electric Hand
Seed-Prentiss Corp., Worcester, Mass.

Saws, Metal Cutting Circular and Band
Hether Bros. Saw Mfg. Co., Rochester, N. Y.

Scraping Machines, Hand & Pneumatic
Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Electric
Hiss-Wolf Machine Co., Cincinnati, O.
Vim Tool Co., 149 Broadway, New York

Screw Driving Machines, Automatic
Reynolds Machine Co., Massillon, Ohio

Screw Machine Products
National Acme Co., Cleveland, Ohio.

Screw Machines, Automatic
National Acme Co., Cleveland, Ohio.
New Britain Mch. Co., New Britain, Conn.

Set-Up Appliances
Standard Shop Equip. Co., Philadelphia, Pa.

Shafts, Flexible
Keller Mech. Eng. Corp., 58 Washington St., Brooklyn, N. Y.
Mail Tool Co., 7739 S. Chicago Ave., Chicago
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chicago

Shafts, Steel
American Hollow Boring Co., Erie, Pa.

Shaping Machines
American Tool Works Co., Cincinnati, O.
Osborne & Sexton Mch. Co., Columbus, O.
Smith & Mills Co., Cincinnati
Springfield Machine Tool Co., Springfield, O.

Shears, Alligator
Canton Foundry & Machine Co., Canton, O.

Shears, Hand
Armstrong-Blum Mfg. Co., 841 N. Francisco Av., Chicago
Hendley & Whitemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H. 811 E. 47th St., New York
Tucker, W. W. & C. F., Inc., Hartford, Conn.
The Unishear Co., 270 Lafayette, New York
Whitney Metal Tool Co., Rockford, Ill.

Shears, Electric Hand
The Unishear Co., 270 Lafayette, New York

Shears, Power
Hendley & Whitemore Co., Beloit, Wis.
The Unishear Co., 270 Lafayette, New York

Sheet Metal Cutting Tools
The Unishear Co., 270 Lafayette, New York

Slotting Machines, Screw Head
Stevens Inc., John B., 27 Cleveland Place, New York

Spacing Washers
Detroit Stamping Co., Detroit, Mich.

Special Tools and Machinery

Bradford Machine Tool Co., Cincinnati, O.
Foots Bros. Gear & Machine Co., 213 Curtis St., Chicago

Illinois Machine & Mfg. Co., LaSalle, Ill.

LaPorte Machine & Tool Co., LaPorte, Ind.

Seed-Prentiss Corp., Worcester, Mass.

Stachar Co., Chan., 2452 N. Greenview Ave., Chicago

Superior Machine & Eng. Co., Detroit, Mich.

Speed Reducers, Worm, Spur and Herringbone

Foots Bros. Gear & Machine Co., 213 Curtis St., Chicago

Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago

Ohio Gear Co., Cleveland, Ohio.

Spindles, Air Driven

Ex-Cel-O Tool & Mfg. Co., Detroit, Mich.

Spindles, Grinding

Ex-Cel-O Tool & Mfg. Co., Detroit, Mich.

Spring Taper Sleeves

Scherr Co., Geo., 144 Liberty St., New York

Spring Winding Tools

Superior Spring Winding Tool Co., Milwaukee, Wis.

Sprockets

Foots Bros. Gear & Machine Co., 213 Curtis St., Chicago

Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago

Massachusetts Gear & T. Co., Woburn, Mass.

Stamps, Steel and Rubber

Schwertle Stamp Co., Bridgeport, Conn.

Stencils, Brass and Oil Board

Schwertle Stamp Co., Bridgeport, Conn.

Stools and Chairs, Factory

Cayo Mfg. Co., Boston Harbor, Mich.

Chicago Wire Chair Co., 619 N. LaSalle St., Chicago

Step Motors

Atlantic Co., Box 133, Sta. B., Brooklyn, N. Y.

Straightening Machines

Springfield Machine Tool Co., Springfield, O.

Whitney Metal Tool Co., Rockford, Ill.

Stud Setters

Premier Safety Chuck Co., 18 S. Clinton St., Chicago

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Bicknell-Thomas Co., Greenfield, Mass.

Premier Safety Chuck Co., 18 S. Clinton St., Chicago

Tapping Machines and Attachments

Alto Mfg. Co., 1647 Wolfram St., Chicago.

Avey Drilling Machine Co., Cincinnati

Baker Brothers, Inc., Toledo, Ohio.

Bicknell-Thomas Co., Greenfield, Mass.

Burke Machine Tool Co., Conneaut, Ohio

John H. Dorman, West New York, N. J.

Eastern Tube & Tool Co., Inc., 609 Johnson Ave., Brooklyn, N. Y.

Frew Machine Co., Philadelphia, Pa.

Hammond Mfg. Co., Cleveland, Ohio

Leland-Gifford Co., Worcester, Mass.

Premier Safety Chuck Co., 18 S. Clinton St., Chicago

Rickett-Shafer Co., Erie, Pa.

Whitney Metal Tool Co., Rockford, Ill.

Thread Dials

Colvin, J. M., Yonkers, N. Y.

Thread Millers

Scherr Co., Geo., 144 Liberty St., New York

Triplex Machine Tool Corp., 50 Church St., New York

Threading Machines

Rickett-Shafer Co., Erie, Pa.

Classified Finding Index

Threading Machines, Automatic, Stud
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Threading Tools
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Zeeman-Clark Mfg. Co., 225 W. Huron St., Chicago

Tool Holders
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Hagen, H. J., 30 Church St., New York

Western Tool & Mfg. Co., Springfield, O.

Tool Racks
Chicago Wire Chair Co., 619 N. La Salle St., Chicago

Tools, Boring
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tools, Lathe and Planer
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tools, Machinists'
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tracks, Machine Shop
New Britain Machine Co., New Britain, Conn.

Tube Flanging Machines
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Turntables
Caston Foundry & Machine Co., Caston, O.

Turret Tool Posts
Pay & Scott, Dexter, Maine

Universal Joints
American Tool Works, Inc., Hartford, Conn.
Borgeson Mfg. Co., Inc., Torrington, Conn.
Boston Gear Works Sales Company, Norfolk Downs, Mass.

Used and Rebuilt Machinery
Budger-Packard Mch. Co., Milwaukee, Wis.
Bath & Co., Cyril J., Cleveland, O.
Bennett Mch. Co., 50 Church St., New York
Bernstein & Co., Geo. M., 549 W. Washington Blvd., Chicago

Broadway Machinery Co., 211 Centre St., New York, N. Y.

Brown Machinery Co., St. Louis, Mo.

Brownell Machinery Co., Providence, R. I.

Carlson Machinery Co., Davenport, Iowa

Central States Machinery Co., 184 S. Clinton, Chicago

Cincinnati Mch. & Supply Co., Cincinnati, O.

Clinton Mch. Co., 125 S. Clinton St., Chicago

Co-Operative Mch. Co., Cleveland, Ohio

Davis Machinery Exchange, Toledo, O.

Detroit Machinery Exchange, Detroit, Mich.

Donahue Steel Products Co., 74th and Ashland Ave., Chicago

Eastern Machinery Co., Cincinnati, O.

Emerson & Co., Louis E., 1761 Elston Ave., Chicago

Empire Machinery Exchange Co., Inc., Cleveland, Ohio

Easley Machinery Co., E. L., 551 Washington Blvd., Chicago

Foster Machinery Co., Cleveland, O.

Harris Bros. Co., 36th & Iron, Chicago

Haskell Mch. Co., Detroit, Mich.

Hill, Clarke & Co., 549 W. Washington Blvd., Chicago

Howarth Co., C. C., Detroit, Mich.

Hyman & Sons, Joseph, Philadelphia

Indianapolis Mch. & Supply Co., Indianapolis, Ind.

International Mch. Co., Detroit, Mich.

Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.

Jones Machine Tool Co., Cincinnati, O.

Kinsey Co., E. A., Cincinnati, O.

Klauber Mch. Co., E. L., St. Louis

Little Co., W. P., Cleveland, O.

Lucas & Son, Inc., J. L., Bridgeport, Conn.

McCabe Lathe & Machinery Corp., J. J., 149 Broadway, New York

McDonald Machinery Co., St. Louis

Machine Tools Sales Co., Philadelphia, Pa.

Manning, Maxwell & Moore, Inc., 27 No. Jefferson, Chicago

Used and Rebuilt Machinery—Cont.

Marr-Galbreath Mch. Co., Pittsburgh, Pa.

Midwest Equipt. Co., 624 W. Lake St., Chicago

Mid-West Machine Tool & Supply Company, Davenport, Iowa

Miles Machinery Co., Saginaw, W. S., Mich.

Molitor Mch. Co., Chas., 118 S. Clinton St., Chicago

Morse and Co., Inc., 408 Broome St., N. Y.

Morris Machine Tool Co., Cincinnati, Ohio

Morton Machinery Co., Cleveland, Ohio

Notch & Merryweather Machinery Co., Cleveland, O.

Nelson Machinery Co., Green Bay, Wis.

Norton-Broadway Mch. Co., Cincinnati, O.

O'Brien Machinery Co., Philadelphia

Osborne & Sexton Mch. Co., Columbus, O.

Palmer-Edwards Co., Flint, Mich.

Hamming Machine Co., John St., Louis, Mo.

Randall Machinery Co., Cincinnati, O.

Reed-Pratt Corp., Worcester, Mass.

Reeves-Fritts Co., 658 W. Washington, Chicago

Ressance Mch. Sales Co., Pittsburgh, Pa.

Bentzachier & Co., J. P., 607 W. Washington Blvd., Chicago

Riverside Machinery Depot, Detroit, Mich.

Rosenfeld Mch. Co., 942 W. Lake St., Chicago

Russell Machine Co., Pittsburgh, Pa.

Scott-Banbach Mch. Co., 180 S. Clinton, Chicago

Selbst-Estad Machinery Co., Dayton, O.

Simmons Machine Tool Corp., Albany, N. Y.

Stecko Machinery Co., A. M., 418 Mid-City Bank Bldg., Chicago

Strafer Machinery Co., Jersey City, N. J.

Strong, Carlisle & Hammond Co., Cleveland

Sun Machinery Co., Newark, N. J.

Syracuse Supply Co., Syracuse, N. Y.

Taylor-Hall Welding Corp., Worcester, Mass.

Toledo Machinery Exchange, Toledo, Ohio

Tabor-Velick & Co., 630 W. Lake St., Chicago

United Mch. & Supply Co., St. Louis

Wertman Mch. Co., M. A., Cleveland, O.

West Penn Machinery Co., Pittsburgh, Pa.

White Mch. Co., A. D., 108 N. Jefferson St., Chicago

Wiggleworth Machinery Co., Boston, Mass.

Winter, Herman L., Philadelphia

Vise Grips
Pitts & Kitts Mfg. & Supply Co., 91 Seventh Ave., New York

Vises, Drilling Machine
Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Barker & Co., Wm., Covington, Ky.

Cayo Mfg. Co., Benton Harbor, Mich.

March Machinery Co., A. R., Cleveland, Ohio

Marin Tool & Die Works, J. E., Springfield, O.

Sheldon Machine Co., 3258 Cottage Grove Ave., Chicago

Vises, Machinists'
New Britain Machine Co., New Britain, Conn.

Sheldon Machine Co., 3258 Cottage Grove Ave., Chicago

Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine
Barker & Co., Wm., Covington, Ky.

Hagen, H. J., 30 Church St., New York

Hartford Special Mch. Co., Hartford, Conn.

March Machinery Co., A. R., Cleveland, Ohio

Sheldon Machine Co., 3258 Cottage Grove Ave., Chicago

Stevens Inc., John B., 27 Cleveland Place, New York

Vises, Shaper
Hagen, H. J., 30 Church St., New York

Sheldon Machine Co., 3258 Cottage Grove Ave., Chicago

Wood Working Machinery
Frew Machine Co., Philadelphia, Pa.

Hendley & Whittemore Co., Beloit, Wis.

New Britain Machine Co., New Britain, Conn.

Porter-Cable Machine Co., Syracuse, N. Y.

Worms
Massachusetts Gear & T. Co., Weburn, Mass.

Jones Foundry & Machine Co., W. A., 4460 W. Roosevelt Road, Chicago

"X-L" Adjustable Inserted Spiral Blade Shell and Machine Reamer



This is a real production reamer. The left hand helical flutes cut fast and clean. Made only in high speed steel. Made with straight and tapered shanks.

Reamers made with Left Hand Angle Cutting Blades do not dig in, and all chatter is eliminated. This means free, clean cutting, smooth holes, and increased production.

The range of expansion is from .100" in the smaller sizes to .150" in the larger sizes. Made with High Speed Steel Blades.

All Sizes Carried in Stock

Catalog on Request

The Schellenbach-Hunt Tool Co.

118 Opera Place, Cincinnati, Ohio

Agents: E. E. Fletcher, 4007 Euclid Ave., Cleveland, Ohio

Used and Rebuilt Machinery Section

Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the blank enclosed to make known your wants in either new or used machinery, and the publisher will pass them along to the advertisers.

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Fitchburg Grinding Machine Corporation, - Fitchburg, Mass.

Putnam 14"x6".

LATHES.

New Haven 32"x12".

42"x36"x22" Whitcomb.
22"x22"x6" Whitcomb.

PLANERS.

30"x12" Niles-Bement-Pond.

TURRET LATHES AND
3x36" J. & L., chuck equipment,
double spindle.

4", 4-spindle Radical screw machine.

No. 1 Steptoe.

BORING MILLS.

1—No. 25 Becker.

3"x24" Rockford horizontal.

24" Reed-Prentiss horizontal.

FOR SALE BY

Carlson Machinery Co., Inc., - Davenport, Iowa

Boring mill, 36" Bullard, 2 heads.
Boring mill, 60" Niles, 2 heads.
Drill, No. 1 Burke on pedestals,
Jacobs chuck.
Grinder, 24" Inger. cutter, tub type.
Grinder, 10x20 Landis universal.
Grinder, Type B Yankee drill point.
Lathe, 7"x32" Pratt & W. bench,
24 collets.
Lathe, 8"x38" Rivett bench, 9 collets.
Lathe, 11"x5" Blount speed.
Lathe, 14"x6" Lodge & Shipley.

Lathe, 22"x8" Mershon turning.
Planer, 16"x4" Hendey.
Press, No. 1 Marshalltown o. b. i.
Press, C-I Ferracute o.b.i., 1000 lbs.
Press, No. 3 Rockford o.b.i., 2400 lbs.
Press, No. 3 Hoeft o. b. i.
Press, No. 30 Crosby o. b. i.
Press, No. 4 Toledo o. b. i.
Press, No. 82 Crosby foot kick pr.
Press, No. 2 Springfield straightening
Turret lathe, 18" cap., bar feed, with
30 collets.

FOR SALE BY

Badger-Packard Mchy. Co., 133-9 W. Water St., Milwaukee, Wis.

| | |
|---|---------|
| Boring mill, 50" Bausch, motor drive. | 31,950. |
| Broach, No. 0 LaPointe | 50. |
| Drill, 5-spindle Kern, all ball bearing | 250. |
| Drill, multiple, No. 15 $\frac{1}{2}$ Foote-Burt, Nos. 2 and 3 M. T. in spindle | 550. |
| Grinder, No. 14 Brown & Sharpe plain cylindrical | 350. |
| Grinder, 10x50 Norton cylindrical | 650. |
| Grinder, No. 10 Bryant chucking | 350. |
| Grinder, No. 18 Bryant chucking | 350. |
| Lathe, Flather geared head, motor drive, 14"x6" | 550. |
| Miller, No. 14-B Milwaukee univ., single pulley drive, dbl. overarm | 1,650. |
| Miller, No. 2 Knight vertical | 375. |
| Miller, Cincinnati production, No. 12 | 150. |
| Radial, Almond extension arm post | 225. |

USED AND REBUILT MACHINERY

FOR SALE BY

Mid-West Machine Tool & Supply Co.,

Davenport, Iowa

Drill, Allen, 3 spindles.
 Grinders, No. 10 Brown & Sharpe.
 Grinder, 10"x52" Landis, s. p. d.
 Grinders, surface, No. 22, Heald.
 Hobbers, Nos. 3, 12-B & C.
 Lathe, No. 9 LeBlond multi-cut.
 Partial list; send us your inquiries.

FOR SALE BY

Indiana Machinery Co., Corner Murray & Clinton, Fort Wayne, Ind.

| | |
|--|--------|
| Drill, Kokomo high speed, 16" overhang..... | \$150. |
| Lathe, 12"x6" Springfield..... | 150. |
| Lathe, 16"x9" Chard geared head, 12 speeds, with new motor..... | 780. |
| Lathes, 22"x12" Niles loose change, heavy, 5 of these..... | 225. |
| Lathe, 24"x14" Niles loose change, heavy..... | 300. |
| Milling machine, Bilton..... | 275. |
| Planer, Niles heavy, 48"x48"x14" table, 2 heads..... | 750. |
| Radial drill, Niles, 6' full universal, single pulley, gear box drive..... | 750. |

FOR SALE BY

McDonald Machinery Co.,

1531-33 N. Broadway, St. Louis, Mo.

Arbor presses, Eames No. 6.
 Boring mill, Barrett 5" horiz.
 Boring mills, 6 Bullard 42" low price.
 Chain hoists, 1, 1½, 2 and 3-ton.
 Demagnetizer, Walker.
 Drill, Bausch 18-spdl.; Moline 32-sp.
 Drills, Baker, heavy duty (2).
 Drills, Leland-G 1-sp. h.s., b.b. floor.
 Drills, Kokomo 1-spindle, Sipp 1 and 2-spdl., h.s., b.b.
 Drills, 20", 24", 26 & 28" b. g., & tap.
 Drills, Prentice 3"; Bickford 4" radials
 Mueller s. p., 8" radial.
 Gear hobber, Gould & E. 24".
 Grinders, Landis piston, motor drv.
 Grinder, Heald No. 60 cylinder.
 Grinders, modern internal; Blount
 30", wet (3), Heald 8", mag. ck.
 Grinders, St. Louis No. 9.
 Grinder, Reed-Prentice vert. surf.,
 2 chucks.
 Grinder, Landis 16"x6" crankshaft.
 Hack saws, 4x4, 6x6 & 2 Racine Jrs.
 Atkins 4x4" Marvel No. 2; Racine
 h. s., Robertaon, No. 3, h. s.
 Hammers, Bradley 40 lb. helve;
 Lathes, Bridgeford 36"x12", q. c. g.;
 L. & S. 36"x16" q. c. g., d. b. g.;
 American 20"x10"; Lehman 16"x9"
 q. c. g.; quick change geared
 Whitcomb-Blaishell 22"x8" q. c. g.
 Monarch 16"x8"; C. & J. 15"x8" all
 quick change geared; 40 assorted
 sizes.
 Milling machines, Ohio No. 20 plain.
 Hendey No. 2 universal;
 LeBlond No. 3-H plain; Brown &
 S. No. 3 plain; B. & S. No. 3 B.p.,
 s. p. d.; American No. 1½ plain;
 Cincinnati No. 3 plain; Becker
 No. 25 plain, Kemp No. 3 univ.

Milling and drilling mchs., Knight
 No. 1½ with power feed.
 Pipe machine, Curtis 3", motor dr.;
 Merrill 4" belt drive, Jarecki 2";
 E. C. & B. 16".
 Planers, Gray 28"x28"x6", 1 head;
 Cincinnati 36"x36"x18" 2 heads;
 Pond, 36"x36"x12" table, 18" bed,
 2 heads.
 Punches, W. & W. No. 17 punch.
 Punch presses, 4-Consolidated No. 2;
 Holden No. 58; Bliss No. 62 grd.;
 Ferracut No. 1 o. b. i., (2) Federal
 Nos. 1, 2, 3; Niagara No. 4½
 o. b. i.; Bliss No. 19-C.
 Pyrometer, Thwing elec., with rec.
 Rolls, Badger 50" Pyramid power
 rolls, 8" dia. 4" cap.
 Saw, Peerless universal shaping.
 Screw machine, Cleveland 26" auto.;
 P. & W. No. 2½ hand; Foster No. 3
 hand; Woods No. 2 tilted turret
 head; Bardons & O. No. 7; National
 A. No. 52 auto., 4-spindle, m. d.;
 Milholland b. g. hand; Foster No. 7
 hd. b. g.
 Shapers, S. M. 16"; 24" Queen City
 24" back geared, American 18" back
 grd.; American 20" b. g.; G. & E.
 16", b. g.; Smith & Mills 29" b. g.,
 s. p. gear box; Nile traveling head;
 Milwaukee 16", b. g.; Walcott 20"
 b. g.; S. & M. 31" and 26" b. g.;
 Cincinnati 24" b. g.
 Shears, 60" thrt. rotary slitting, (2).
 Square shears, Niagara 52" power,
 m. d. 18-ga.
 Threading machines, Webster &
 Perks 4-spindle; Geometric.
 Welders, butt, Federal, 1" rds.
 Welder, spot, Vollans.

USED AND REBUILT MACHINERY

FOR SALE BY

Marr-Galbreath Machinery Co.,

Air comp., $4\frac{1}{2} \times 4\frac{1}{2}$ Curtis, 24 cu. ft.
 Arbor press, No. 5 Atlas.
 Blowers, Root No. $\frac{1}{2}$, 500 c. p. m.
 Blowers & exh., 6, 8, 9 & 16" opening.
 Bolt cutters, 11" Landis, 2 heads.
 Bolt cutters, 14" Morgan, 2 heads.
 Boring mill, floor type, 6" bar.
 Boring mill, 36"-44" N-B-P side
 head, motor drive.
 Brake, 6" D & K. 18 ga. hand power.
 Brake, 4" x 18 ga. D. & K. hand.
 Brake, 8" x 12 ga. Power, Chicago.
 Burnishing barrel, 24" x 16", glasslined
 Cold header, 1" W-F., solid die.
 Cold header, 8" W-F., solid die.
 Cold saws, Nos. 11 $\frac{1}{2}$ and 12 Higley.
 Draw bench, Oliver, 6", 275 lb.
 Draw bench, 10,000 lb. for shapes.
 Drill, 20" Prentice, plain.
 Drill, 28" Superior, b. g., s. h.
 Drill, radial, 30" Taylor & Fenn.
 Drill, radial, 10" for m. d., (cheap).
 Drill, radial, 7" Prentice, s. p. d.
 Drill, radial, 5' Prentice.
 Drills, radial, 3' & 3 $\frac{1}{2}$ Bickford.
 Furnace, rotary annealing, 12" x 8".
 Furnace, gas hardening, 10" x 8" x 12".
 Furnaces, oil tempering, 10" x 10" x 10".
 Gear and pinion cutter, No. 3 Sloan.
 Grinder, No. 1 Norton universal
 tool and cutter.
 Grinder, No. 3 Brown & Sharpe
 univ. cutter & reamer.
 Grinder, No. 11 B. & S., plain.
 Grinder, surface, No. 1 W. & M., m. d.
 Grinder, 12" Bristol, rotary surface.
 Hack saws, 8" Atkins, mtr. 1/60/220.
 Hack saws, 8" Economy: 8" Q. & C.
 Hammers, 40 & 80 lb., Bradley helve.
 Hammers, 75 & 150 lb. Bradley up-
 right.
 Hammer, 2-B. Naxel, belt and motor
 Hammer, 2500 lb. Chbg., s. f. steam.
 Hammers, s. f. 600, 1100, 1800 lbs.
 Hammer, 1000 lb Chbg., steam drop.
 Hammer, 250 Chbg., board drop.
 Hoist, 4 ton V & T high speed.
 Hoist, 1 ton C & M spur gear.
 Hoists, air, 700, 800 & 1300 lbs.
 Keyseaters, Nos. 0 and 2, M. & M.
 Keyseaters, No. 00 & No. 2 Baker.
 Keyway cutter, 24" Morton, cap. 2 $\frac{1}{2}$ ".
 Lathe, 9" x 3' Shepard, speed.
 Lathe, 14" x 8' Monarch, t. a.
 Lathe, 18" x 8' Cisco, q. c. g.
 Lathe, 20" x 8' Am. q. c. g., chuck \$250
 Lathe, 16" x 10' Monarch, grd. hd., t. a.
 Lathe, 24 x 10 Pgh. — \$250.

58 Water St., Pittsburgh, Pa.

Lathe, 26" x 10' Walcott, q. c. g.
 Lathe, 21" x 14' LeBlond, g. h. (Mfg)
 Lathe, 36" x 64' Bridgeford gun bor.
 Lathe, 20" x 10' Sidney, q. c. g., t. a.
 Lathe, pattern maker's, 24" x 11".
 Millers, No. 3 Cin. pl. geared feeds.
 Miller, No. 0 Kempsmith univ.
 Miller, vertical, No. 3 Becker, cone.
 Motor, 7 $\frac{1}{2}$ h. p., 3/60/220/1800.
 Motor, 10 h. p. a. c., 3/60/220/1740
 Motor, 25 h. p. slip rg., 3/60/220/1160
 Motor, 20 h. p., 3/60/220/1200.
 Paper slitter, 15" Jacques, bench.
 Pipe machine, 12" Williams, s. p. d.
 Pipe machine, 4" Williams, m. d.
 Planers, 48 x 48 x 20", 3-heads, Gray.
 Planers, 33 x 33 x 10", 2-hds., W. & P.
 Planer, 22" x 22" x 5" Cincinnati, 1 hd.
 Press, No. 3A Bliss, adj. table.
 Press, DGG-55 Fer., 20" str., b. g.
 Press, No. 2 Barouth o. b. i., 16,000 lb.
 Press, No. 94 Bliss, punch type.
 Press, No. 3 Bliss, punch type.
 Press, No. 1 Toledo o. b. i., pl. m. d.
 Press, No. 14 Stiles (Bliss) plain.
 Press, punch type, United, 15,000 lb.
 Press, D. G. 62, Ferracut, s. s.
 Press, No. 3 Massillon, trimming.
 Presses, No. 87 Niagara, screw.
 Pump, Centrifugal, 4" disch., m. d.
 Punch, 30" thrt., 1" x 1" m. d., s. e.
 Punch, Rapid, 20" thrt., 1" x 4", m. d.
 Punch, coping, steel plate, 18" thrt.
 36" die space, 2 holes 1" x 1" m. d.
 Punch & shear, 72" W. W. 2" x 1 $\frac{1}{2}$ ",
 motor drive.
 Punch & shear, No. 23 Marvel hand.
 Punch, & shear, 17-B. New Doty,
 10" throat, m. d.
 Riveter, 1-AA. High Speed, m. d.
 Riveter, Allen jaw, 36" cap. 1 $\frac{1}{2}$ ".
 Riveter, 1" Shuster rotary, belt.
 Saw, Newton, 62" blade, comb.
 Saw, Burke, 12" blade, capacity.
 Screw mcne., 10" P. & W. pl., w. fd.
 Shaper, 16" American, b. g. crank.
 Shaper, 26" Smith & Mills, b. g., cr.
 Shear, alligator, Canton 2 $\frac{1}{2}$ ", No. 4.
 Shear, rotary, 12" thrt., cap. 10 ga.
 Shear, rotary, No. 2 Niagara, hand.
 Shear, rotary bevel, 1", m. d.
 Shear, squaring, 8" x 14 ga. power.
 Shear, squaring, 60" x 14 ga. Canton.
 Tumbling barrel, 72" x 18", c. i.
 Turbo compres., Spencer 5400 c.f.m.
 Turbo-generator, 500 kw, 3/60/2300.
 Turret lathe, 13" Gisholt, 2 $\frac{1}{2}$ h. s.

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Toledo 110 5 k. w.
Federal Jr. 10 k. w.
Winfield "S" 10 k. w.
Winfield "N" 10 k. w.
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Toledo No. 3, foot operated.
Thomson 2A.
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Air compressor 4½x5 Ingersoll-Rand.
Air compressor, 6x6 Chicago pneumatic, tank.
Air compressor, 6x5 Ingersoll-Rand.
Band saw, 10" Napier metal cutting.
Bolt threaders, 1½" and 2" National.
Boring mill, 24" Bullard vertical, new era head.
Brake, 8" Chicago, cap. 18 ga.
Drill, 20" Barnes camel back.
Drill, 20" Rockford, b. g. and p. f.
Drill, 20" Barnes, 4-spindle.
Drill, Leland-Gifford high speed, motor drive.
Drill, No. 310 Baker hvy. duty, (2).
Drill, 4" Hammond hinged arm radial, tapping attachment.
Drill, 3" gang radial, tapping attachment, universal table.
Drill, 16" Kern hi-speed.
Drill, 4-spindle Foote-Burt rail.
Drill, 6-sp. Nat. Acme horizontal.
Forming rolls, 68" Pettingell hand.
Grinder, No. 1 Greenfield plain.
Grinder, No. 2 Gardner disc, comp.
Grinder, No. 19-52" Besly vert. disc.
Grinder, No. 60 Heald cylinder.
Grinder, Walker universal.
Grinder, No. 2 Grand Rapids tool and cutter.
Hack saw, 6"x6" Racine power.
Hammer, 8" Schuster riveting.
Hammer, No. 18-B High Speed riveting, m. d.
Keyseater, No. 9 Mitts & Merrill.
Keyseater, No. 2 Baker.
Lathe, 9"x18" Porter-Cable.
Lathe, 14"x6" Monarch q.c.g., chuck
Lathe, 16"x6" Monarch q.c.g., chuck
Lathe, 16"x8" Oliver q. c. g., engine.
Lathe, 16"x8" Monarch l. c. g., eng.
Lathe, 18"x8" Perfection q.c.g., eng.
Lathe, 22"x8" National q. c. g., engine, geared hd., single pulley dr.
Lathe, engine, 18"x7" Lehmann, q. c. g., chuck.
Lathe, 24"x12" American q. c. g., heavy duty.

Lathe, 18"x10" American q. c. g., ck. l. c. g.
Lathe, engine, 24"x12" Greaves-K.,
Mill, No. 1 Cincinnati universal.
Mill, No. 2 Rockford universal, index head, complete.
Mill, No. 3B Brown & Sharpe plain, heavy duty.
Mill, No. 1 Cincinnati plain, cone pulley, geared feeds.
Mill, No. 6 Whitney hand.
Mill, No. 12 B. & S. production, (2).
Miller, Fox hand.
Pipe threader, 4" Merrill, full set of dies.
Press, arbor, No. 28 Atlas.
Press, arbor, No. 3 Greenerd.
Press, No. P1 Ferracute s. b.
Press, No. P2 Ferracute s. b.
Press, No. 4 Adriance o. b. i.
Press, No. 4 Toledo o.b.i., flywheel.
Press, No. 6 Bliss horiz. heading.
Press, John Evans multiple shearing, punching or trimming.
Punch and trimmer, John Evans double end.
Riveter, Eveland electric.
Rolls, John Evans large tapering.
Screw machine, No. 1 Warner & S.
Screw machine, No. 1 Garvin hand.
Screw mch., 1" Pratt & Whitney.
Shaper, 10" Gould & E. crank.
Shaper, 16" American cank b. gr.
Shaper, 16" Steptoe crank, bk. grd.
Shaper, 20" Kelley crank, back grd.
Shaper, 20" Mattison crank, b. g.
Shaper, 24" G. & E. crank, b. g.
Shaper, 24" Milwaukee cr., bk. grd.
Shaper, 26" Smith & Mill crank, b. g.
Shear, Yoder circular, m. d.
Shear, No. 136 J. M. Robinson pwr. square, cap. 36"x18 gage.
Turret, lathe, No. 5 Foster, power feed to turret and cross-slide.
Turret lathe, No. 7 Foster, power feed to turret and cross slide.
Welder, Taylor spot, 13 k. v. a.
Welder, Taylor spot, 50 k. w., 40 cy., 440 v.

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FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

MILLING MACHINES.

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| No. 2 Kempsmith Maximiller univ. | No. 2 Becker vert., rotary table. |
| No. 3B Milwaukee plain, dbl. arm. | No. 2 Oesterlein plain. |
| No. 3 Hendey plain. | No. 4 Fox miller, single pulley. |
| No. 2 Rockford plain. | 48" Niles double head boring mill. |
| No. 2 Brown & Sharpe plain. | 24" Binnse horizontal boring mill. |
| No. 2 Owen universal. | Large variety hand millers. |

LATHES.

| | |
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| 26" x 13' Wickes, semi-quick chg. gr. | 16" x 8' Cincinnati, q. c. g., taper. |
| 24" x 12' Bradford q. c. g. | 16" x 8' Rockford, taper att. |
| 20" x 8' Hendey taper draw collets. | 18" x 6' Prentice, geared head. |
| 18" x 10' Davis, q. c. g. | 14" x 6' Rockford, q. c., draw, collet. |
| 18" x 8' Pratt & W. q. c. g., collets. | 14" x 6' Bradford q. c. g. |
| 18" x 8' Greaves-Klusman q. c. g. | 14" x 6" - 12" x 6' Hendeys, taper draw. |

GRINDERS.

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| No. 2 Norton universal (2). | 4" x 12" Norton self-contained. |
| No. 13 Brown & Sharpe universal | 10" x 16" Sterling universal. |
| No. 1 Brown & Sharpe universal. | No. 6 Heald internal. |
| No. 3 Brown & Sharpe universal. | Bryant internal chucking. |
| No. 16 Brown & Sharpe cylindrical. | Abrasive surface, magnetic chuck. |

GEAR CUTTERS.

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| 8" x 22" Fellows gear threader, m. d. | Brown & Sharpe No. 13 gear cutter. |
| No. 3 Barber-Colman auto. gr. gen. | 4" Waltham auto. gear cutters (4). |

RADIALS AND DRILLS.

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| 6' American triple purpose. | 2-spindle Sipp. |
| 6' American triple geared. | 4-spindle Avey, Leland-Gifford. |
| 4' American triple geared. | Henry & Wright high speed, b. b. |
| 4' Fosdick. | 6-spindle 20" Barnes, power feed. |
| 6' Prentiss Bros. | 28" Snyder sliding head. |
| 5' Reed-Prentice. | 24" Aurora sliding head. |
| 3' Bickford, all gear, box feed. | 20" & 24" camel back. |

PRESSES AND SHEARS.

| | |
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| 8' Toledo square shear, 3/16". | No. 5A Toledo. |
| 5' steel sq. shear, 12 gauge. | Smaller shears and brakes. |
| 52" x 16" gap square shear. | No. 15 Toledo 20" throat. |
| 1500 lb. W. & W. drop drop hammers. | Large variety and sizes of rotary shears, beaders, etc. |

SHAPERS.

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| 24" Milwaukee geared, crank. | 16" Rockford geared, crank. |
| 20" American geared, crank. | 15" Hendey, tight & loose pulley. |
| 16" American geared, crank. | 16" American crank. |
| 16" Flather crank, single pulley. | |

SCREW MACHINES AND TURRET LATHES.

| | |
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| No. 6 Warner & Swasey heavy duty, carriage, power cross feed. | Nos. 0 & 2 B. & S. semi-auto. |
| No. 6 Warner & Swasey tur. lathe. | Nos. 2 & 00 B. & S. tur. formers. |
| No. 4 W. & S. fox lathe, grd. frict. | 8" x 10" Clevelands. |
| No. 4 Warner & Swasey b.g., fr. hd. | 11" 4-sp. Gridleys, auto. (3). |
| No. 2 Warner & Swasey screw mch. | 24" Jones & Lamson (2). |
| No. 1 Warner & Swasey screw mch. | 16" Acme b. g., friction head. |
| No. 2 Warner & Swasey hex. tur. | 18" & 24" Fosters, univ. and plain. |
| 1" cap. Pratt & Whitney. | No. 1-B Foster univ., grd. hd. (3). |
| | Large variety of smaller Fosters, etc. |

MISCELLANEOUS.

| | |
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| Bolt cutters, 1", 1 1/2" Landis. | Keyseaters, No. 1 Davis. |
| Bolt cutters, 1 1/2"-1 1/4" (3). | Tappers, 1/2" Garvin, Pratt & Whitney. |
| Keyseaters, Nos. 0 & 2 Becker. | 1" Landis 1" Geometric gear cutter. |
| Large stock of lathes, punch presses, plain and universal grinders, 24", 4' 8", 8', 10' power squaring shears, tappers, several hundred Warner & Swasey, Potter & Johnston, etc., box, boring tools etc. | |

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Guaranteed NEW MACHINES in original crates at prices below list:
Pipe machine, No. 70 Forbes.

Exceptional values in USED TOOLS:

Bolt threader, Acme 2-spindle, with one head, $\frac{1}{2}$ " capacity.
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Grinder, Blount 1 $\frac{1}{2}$ "x14" wet tool, m. d.
Knife grinder, 30".
Lathe, 8x80 Fitchburg lo-swing.
Lathe, 26"x10" Cooper Bros., \$125.
Millers, Wisconsin hand, (3).
Pipe threader, Jarecki belt drive.
Radial, 5' Pond.

Straightener, No. 2 $\frac{1}{2}$ Corey.

Radial, 5' Dreses, single pulley drive, gear box, \$475.00.

Rip saw, No. 2 $\frac{1}{2}$ Powers, self feed, power.

Screw machine, No. 2 $\frac{1}{2}$ Garvin.
Thread miller, No. 12 Lees Bradner.

Tilted turret, No. 6 Wood.

Turret lathes, No. 4 Foster, (2).

Turret lathe, 2 $\frac{1}{2}$ x26 Pratt & Whitney.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road,

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Air compressors, 8"x8" b. d.
Air compressors, 8"x8" m. d.
Air compressors, 20"x18" m. d.
Automatics, $\frac{1}{2}$ " Cleveland s. s., (2).
Automatic, $\frac{1}{2}$ " Gridley, cone drive.
Automatics, Nos. 52 & 53 Acme.
Bolt cutter, 2 $\frac{1}{2}$ " Acme, single head.
Bolt cutters, 1", 1 $\frac{1}{2}$ ", 1 $\frac{1}{2}$ single head.
Boring mill, D. & H., 2 $\frac{1}{2}$ " bar.
Boring mill, 60" Gisholt 2 heads, geared feeds.
Boring mill, 25' Sellers, 2 heads, full motor drive.
Boring mill, 51" Bullard, 2 heads.
Bulldozers, No. 27 Williams-White, motor drive.
Buffers, 10 h. p., 220-3-60-3600.
Broach, No. 3 LaPointe.
Centering mch., Cadillac dbl. end.
Drills, bench type, m. d., new.
Drills, 15, 20 21" floor type, b. d. or m. d.
Drills, 20" plain feed, (4).
Drills, 20" and 21" back geared, new.
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Drills, radial, 2 $\frac{1}{2}$ ", 4", 5" and 6".
Drill, 36" T. & F. sensitive radial.
Drill, 3' Mueller, s. p. d., gear box.
Drill, P. & W. multiple, 12-1" spds.
Drill, D-2 Colburn heavy duty, (2).
Drill, No. 25 Foote-Burt hvy. duty.
Drill, No. 25-36" Foote-B. hvy. duty.
Gear cutter, No. 1 Bilton.
Gear cutter, No. 13 Brown & Sharpe.
Grinder, 5 h. p. U. S., 220-3-60.
Grinder, Oliver drill, $\frac{1}{2}$ " cap., m. d.
Grinder, 12"x24" Modern plain.
Grinder, No. 1 Norton univ. cutter.
Grinder, No. 2 $\frac{1}{2}$ Bath universal.
Grinder, 7 $\frac{1}{2}$ h. p. Ransom, 220-3-60.
Grinder, No. 16 Besley disc.
Grinders, $\frac{1}{2}$ h. p. to 10 h. p., m. d., new.
Hammers, No. 2-A, h. d. Hi-Speed, m. d., 3 ph., 60 cy., 220 v., (4).

Hammer, No. 1AA High Speed, m. d.
Hammers, 60 & 300 lb. Bradley helve.
Keyseater, No. 3 Baker, cap. 3".
Lathe, 12"x10" Davis tool rm., q. c. g.
Lathe, 14"-28" Fay & Scott gap.
Lathe, 18"x10" W.-B., g. h., s. p. d.
Lathe, 27"x18" Reed, bargain.
Lathe, 30"x12" Boye & Emmes, q. c. g.
Lathe, 48"x48"x19' 8" Betts-Bridgeford.

Lathe, 30"x16" L. & S., q. c. g.
Lathe, 36"x25" W. P. Davis m. d.
Lathe, 36"x34" W. P. Davis, m. d.
Lathe, 18" Libby turret, s. p. d.
Lathe, 21" Gisholt turret, (2).
Miller, No. 2A Milwaukee plain.
Millers, No. 2 Ohio plain, (2).
Miller, No. 3 Cincinnati plain, m. d.
Miller, No. 4 Hendey plain, s. p. d.
Pipe mch., E., C. & B., 2 $\frac{1}{2}$ " to 8".
Pipe machine, Merrill, 2 $\frac{1}{2}$ " to 12".
Pipe machine, new 2-P. 2" Williams.
Planer, 22"x22"x5" Gray.

Planer, 72"x72"x24" D. & H. open-side.

Planer, 72"x72"x14" D. & H. openside.
Press, No. 3 Adriance o. b. i., 3 $\frac{1}{2}$ " str.
Press, No. 5A Toledo, o. b. i.
Press, Ferracut D D2, o. b. i., cam.
Presses, 3P Ferracut (3).
Presses, Nos. 19, 20 & 21 Bliss, new.
Presses, Nos. 3, 4, 5 and 6 Consolidated, new.

Presses, No. 20 Bliss, No. 3 Adriance.
Planer, 24"x24"x8' Powell, 1 head.
Planer, 30"x30"x8' Powell, 1 head.
Planer, 33"x33"x12" Cincinnati, 2 hds.
Punch, Wickes, 48" thrt., cap. 14"x1".
Seamers, Bliss, Leffler & Max Ams.
Shapers, 14" & 20" Ohio single gear.
Shapers, 16", 24" & 36" Gould & E.
Shapers, 24" & 36" G. & E., m. d. b. g.
Shapers, 16" American b. g.
Shear, 10"x14 ga. Bertsch, b. d.

Our warehouse is full of bargains. What have you for sale?

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FOR SALE BY

West Penn Machinery Company

Pittsburgh, Pa.

1208 House Building.

Air comp., 6"x6" Curtis, 49 c. f.
 Air comp., 8"x8" Bury "BB", 79 c.f.
 Air comp., 8"x8" I.-R. ER-1, 138 c.f.
 Air comp., 10x10 I.-R. N-E-L.179 c.f.
 Air comp., 12x10 I-R. ER-1, 368 c.f.
 Air comp., Bury, duplex, 818 c. f.
 Automatic, No. 55 Nat. 4-spindle.
 Bolt cutters, 1 $\frac{1}{2}$ ", 2", 2 $\frac{1}{2}$ ", 4" Landis.
 Bolt cutters, 1 $\frac{1}{2}$ " 2" Landis, dbl. hd.
 Bolt cutters, 1 $\frac{1}{2}$ " Landis, 3hd., m. d.
 Boring mills, vertical, 30" to 16".
 Boring mill, 40" Gisholt, r.p.t., m.d.
 Boring mill, 96" Niles 2 hds.
 Boring mill, 84" Poole, 2 hds.
 Boring mill, 25" Sellers, m. d.
 Boring mill, horiz. 4-spdl. Newton.
 Boring mill, horiz. 3 $\frac{1}{2}$ " bar, Rochester.
 Boring mill, horiz. 6 spdl. Niles.
 Brake, 48"x3/16" Dreis & Krump.
 Brake, 6"x16" ga. Robinson.
 Brake, 8"x3/16" Dreis & Krump.
 Brake, 10"x3/16" Dreis & Krump.
 Brake, press type, 10' 6" Ohl, 10 ga.
 Brake, press, 12"x1" Cincinnati.
 Bulldozer, No. 3 Williams & White.
 Bulldozer, Nos. 25 and 28 W. & W.
 Drills, 14" to 38".
 Drill, No. 3 Colburn.
 Drill, 2-sp. b. b. Elmore, 1 $\frac{1}{2}$ ", sens.
 Drill, mult., No. 5 Fox, 10-spindles.
 Drill, radial, 8" Prentice, b. d.
 Drill, radial, 6" Prentice, s. p. d.
 Drill, radial, 10" Bausch, m. d.
 Flanger, McCabe, 1 $\frac{1}{2}$ " capacity.
 Gear cutters, spur and bevel.
 Gear cutter, 48" Newark, b. d.
 Gear hobber, 78" S. & S. m. d.
 Gear planer, 24" Gleason, bevel.
 Grinder, radial, 14", 220 v. 3-60
 Grinder, No. 14 Besly, disc.
 Grinder, planer type, 51" Springfield.
 Grinder, face, 84" Diamond, m. d.
 Grinder, surface, 14" Arter.
 Grinder, surface, No. 16 Blanchard.
 Hammer, 65-lb. Champion, upright.
 Hammer, 80-lb. Bradley, cush. helve.
 Hammer, 100 lb. Bradford, upright.
 Hammer, 150-lb. Dupont, upright.
 Hammers, Nos. 2-B, 3-B, 4-B Nasel.
 Hammers, steam 600 lb. to 6000 lb.
 Hammer, 2500-lb. Bement, agl. fr.
 Hoists, 1 to 34-ton Shepard, 220 v.
 Keyseater, No. 2 Mitts & Merrill.
 Lathes, 12" to 60".
 Lathe, 16"x6" Hendey.
 Lathe, 16"x6" LeBlond, q. c. g.
 Lathe, Lo-Sw., 34"x60" Fitchburg.
 Lathe, brass, 18"x6" Fox.
 Lathe, roll, 50" United, m. d.
 Lathe, turret, 3"x36" J. & L.
 Lathe, turret, No. 4 W. & S.
 Lathe, turret, No. 6 W. & S., p. f.
 Lathe, turret, 24" Steinle, 6 $\frac{1}{2}$ " hole.
 Lathe, turret, No. 4 Foster.
 Miller, duplex, 24" Cincinnati.
 Miller, plain, No. 4 Cinti. 14" d. h.
 Miller, univ., No. 4 B. & S. 12" d. h.
 Miller, slab, 24"x20"x14" Ingersoli.
 Pipe machines, 2" to 12".
 Pipe mch., 3" Jarecki, dies, b. d.
 Planer, 48"x42"x12" Cincinnati, 2 hds.
 Planer, 56"x56"x16" Cin. rev. m. d.
 Planer, 48"x42"x20" Bement-M., 4 hds.
 Planer, 96"x96"x18" Ridgway, 4 hds.
 Planer, o. s., 48"x48"x14" D. & H.
 Planer, o. s. 96"x72"x26" D. & H.
 Planer, rotary, 48" Niles, m. d.
 Press, hyd., 50-ton Lourie.
 Press, No. 30 Bliss, o. b. i.
 Press, geared, No. 34 Toledo.
 Press, No. 37 Bliss, s. s., 6" stroke.
 Press, No. 74 Bliss, s. s.
 Press, No. 78 Bliss, t. r. 12" stroke.
 Press, No. 94-P Toledo, 42"x198".
 Press, wheel, 150-ton Caldwell.
 Press, wheel, 400-ton Niles.
 Pump, Gould, cent. 400-gals.
 Punch, hor., Cleveland, 1" thru 1 $\frac{1}{2}$ ".
 Punch & sh., 30" Rock-River 1 $\frac{1}{2}$ "-1 $\frac{1}{2}$ ".
 Punch & s., No. 2 L. & A. 12" thrt. arch. j.
 Punch, No. 1 L. & A. 30" thr., 14"-1 $\frac{1}{2}$ ".
 Punch, No. 5 H. & J. 24"-1 $\frac{1}{2}$ " m. d.
 Riveter, Hanna, 18" thrt., 18" gap.
 Riveter, Hanna, 36" 70-ton.
 Rolls, angle bend., 2"x2"x1" Bertsch.
 Rolls, angle bend, 3"x3"x1" Buffalo.
 Rolls, bending, 42"x14 ga. Bertsch.
 Rolls, bending, 54"x1" Cincinnati.
 Rolls, bending, 10"x1" Cleveland.
 Rolls, bending, 12"x1" H. & J.
 Saw, metal band, 26" Crescent.
 Saw, friction, Ryerson, Nos. 2 & 3.
 Saw, hack, No. 7 Atkins, 8"x8".
 Saw, hot, 84" Mesta sliding frame.
 Sandslinger, 11' tractor type.
 Shaper, 16", 20" & 24" Gould & E.
 Shaper, 24" Stockbridge.
 Shear, angle, L. & A., 6"x6"x1 $\frac{1}{2}$ "
 Shear, alligator, Garrison, 1 $\frac{1}{2}$ " sq.
 Shear, alligator, No. 5 Canton, 3" sq.
 Shear, alligator, United, 6"x6".
 Shear, bevel, Lennox 1 $\frac{1}{2}$ ".
 Shear, 20"x16" ga. Bliss power.
 Shear, 26"x16 ga. Niagara, b. d.
 Shear, sq. 72"x14 ga. Bertsch, b. d.
 Shear, sq. 8"x1" Stoll, m. d.
 Shear, sq., 10"x1" Morgan, 24" gap.
 Shear, 12"x14 ga. Peerless, 95% new.
 Shear, plate, 10"x1" H. & J. No. 4.
 Shear, plate, 144"x14" H. & J. No. 7.
 Shear, plate, United, 156"x14".
 Shear, rotary, No. 6 Quickwork.
 Slotter, 18" Betts, b. d.
 Straightening rolls, Brightman 1"-4"
 Straight'r, 48" United, 16 ga. 13 rolls.
 Straightener, Nat. 60"x14 ga. 17 rolls.
 Straightener, beam, No. 4 H. & J. m.d.
 Swaging machine, No. 3 Langelier.

USED AND REBUILT MACHINERY

FOR SALE BY

E. L. Klauber Machinery Co.,

Band saws, 14" motor drive.
Bench drills, motor drive, 110 volt.
Drill presses, 10" to 34".
Drop press, 200 lbs. power lift.
Gear hobber No. 000, S. & S.
Gear miller, automatic, 4" cap.
Grinders, Greenfield cutter & tool.
Grinder, No. 2 Garvin hole.
Grinders, disc, motor drive.
Grinders, electric bench, 1/2 h. p. 110 volt a. c.
Lathe, 15x6 Carroll-Jamieson q.c.g. d. b. g.
Lathe, 15x6 South Bend.
Milling machine, No. 4 Cincinnati plain, all geared, single pulley dr.

320 South Third St., St. Louis, Mo.

Milling machine, Knight No. 14.
Polisher, St. L. No. 7, roller bearing.
Presses, 30 ton Southwark, hydr.
Punch and shear, No. 18 Williams & White.
Screw mches, 4" Cleveland auto. (2).
Screw machine, Gridley 14", 4-sp.
Screw machine, No. 36 National Acme 4-spindle.
Tapping machine, No. 6 St. Louis.
Tapping mach. 4" Montgomery h. s.
Tapping machine, No. 2 St. Louis.
Tapping mch., No. 1 Garvin auto.
Turret lathe, Wood tilted turret, 1".
Welders, butt and spot 15 k. w.

FOR SALE BY

Randle Machinery Co.,

Air compressor, 7 1/2x6 Chicago, nsb.
Air compressor, 8x8 Penna.
Air compressor, 9x8, 10x10 & 12x10 1-R.
Bending rolls, 62x3/16" Badger State.
Bending rolls, 7 1/2" cap. H. & J.
Bending rolls, 6' & 8 1/2" H. & J.
Bending rolls, Nos. 8 and 9 Bertsch, motor drive.
Bolt cutter, 14" Acme.
Bolt cutter, 4" Acme, m. d.
Boring mill, 36" Bullard. r. p.
Boring mill, 42" Niles r. p.
Boring mill, 51" Niles.
Boring mill, 60" & 72" Bullard.
Boring mill, 84" & 96" Niles.
Brake, 4"x10 Robinson.
Brake, 8"x10 ga. Robinson. m. d.
Brake, No. 4109 D. & K. press.
Brake, 8"x16 ga. Robinson.
Brake, 10"x16 ga. D. & K.
Drill, 24", 26" upright.
Drill, 3" Cincinnati-Bickford.
Drill, 3" Fosdick.
Drill, 3 1/2" Fosdick, m. d.
Drill, 4" Bickford.
Drill, 4 1/2" Morris, m. d.
Drill, 3" American, triple purpose.
Gear cutter, Nos. 1 & 3 Farwell.
Gear cutter, No. 18-H G. & E.
Gear cutter, Nos. 4 & 2 S. & S.
Hack saw, 6x6 Racine or Peerless.
Hack saw, 6x6 Peerless universal.
Hack saw, 9x8 Peerless m. d.
Keyseater, Nos. 1 & 2 Davis.
Keyseater, No. 2 M. & M.
Keyseater, No. 3 1/2 Baker.
Lathe, 16"x6" L. & S. q. c.
Lathe, 16"x6" P. & W. tool room.
Lathe, 14"x8" L. & S. selective head.
Lathe, 19"x10 LeBlond q. c.

1733 Power St., Cincinnati, Ohio

Lathe, 21"x12 LeBlond q. c.
Lathe, 26"x16" American.
Lathe, 25"x14" LeBlond.
Lathe, 22"x19" American grd. head.
Lathe, 27"x20" L. & S. q. c.
Lathe, 36"x15" L. & S. selective.
Lathe, 37"x17" Schumacher & Boye.
Lathe, 36"x26" Wicker semi-q. c.
Lathe, 37"x25" Putnam m. d.
Miller, No. 3B K. & T.
Miller, No. 4B K. & T.
Miller, No. 24 Oesterlein
Millers, Nos. 2 and 3 LeBlond.
Miller, No. 2 Cincinnati universal.
Press, No. 8-A Bliss.
Press, No. 19 Bliss.
Planer, 48"x45"x14" Gray, 4 heads.
Planer, 60"x80"x10" Pond, 3 heads.
Planer, 30"x30"x10" Hendey, 2 hds.
Planer, 24x24x8" American, 2 heads.
Planer, 72"x72"x18" D. & H., m. d.
Planer, 72"x72"x20" Sellers 4 heads.
Planer, 72"x72"x20" Ridgway, 4 hds.
Pipe machine, 8" Williams m. d.
Pipe machine, 12" B. & K., m. d.
Pipe machine, No. 5 1/2 Merrill.
Pipe machine, 12" Curtis.
Shaper, 14" and 18" Steptoe.
Shaper, 22" American, b. g.
Shaper, 24" Queen City b. g.
Shaper, 25" S. & M., m. d.
Shear, No. 27 U Buffalo m. d.
Shear, No. 4 L. & A. univ. m. d.
Shear, No. 65 Niagara circle.
Squaring shear, 42"x18 ga. Niagara.
Squaring shear, 6"x10 ga.
Squaring shear, 8"x16 ga. Bertsch.
Turret lathe, No. 3 Acme univ.
Turret lathe, No. 2 P. & W.
Wheel press, 150 ton Caldwell m.d.;
125 ton and 200 ton capacities.

Also many other tools of various sizes and types. Send us your inquiry.

USED AND REBUILT MACHINERY

FOR SALE BY

Scott-Bansbach Machinery Co., 130 So. Clinton St., Chicago, Ill.

| | |
|---|--------|
| Auto, screw mach., Cincinnati, 5-spindle, 4" | 500. |
| Auto, screw mach., 14" Gridley 4 spindle model F | 1,150. |
| Auto, screw mach., 24" Gridley 4 spindle model F | 2,500. |
| Auto, screw mach., Cleveland, 14", Model A | 150. |
| Auto, screw mach., Cleveland 3 1/2" Model A, square pan | 750. |
| Auto, screw mach., Cleveland 3 1/2" Model A, square pan | 850. |
| Bolt cutter, 2" D. & H., double head | 300. |
| Boring mill horiz. 4" Rochester floor type, rot. table, m. d., r. p. t. | 4,500. |
| Centering machine, Whiton swivel | 75. |
| Drill, 21" Cincinnati sta. head, with tapping attachment | 200. |
| Drill, 24" Rockford sliding head | 150. |
| Drill, 28" Superior, sliding head, back geared | 325. |
| Drill, 1-spindle Allen h. s. b. b., 14" with pump | 175. |
| Drill, 4-spindle Barr, plain bearing | 225. |
| Drill, radial, 3" American sensitive | 200. |
| Drill, 20" 2-spindle Hoefer power feed | 250. |
| Filing machine, Cochrane-Bly, floor type | 100. |
| Grinder, 24" Diamond disc, with disc and ring wheel | 300. |
| Grinder, 28" Valley City disc | 250. |
| Grinder, No. 65 Heald, with fixtures, b. b. spindle | 900. |
| Grinder, No. 14 Cincinnati cutter and tool | 450. |
| Grinder, No. 3 Norton universal cutter & tool, p. f. | 450. |
| Grinder, No. 11 B. & S. plain 6"x32" | 400. |
| Grinder, 12"x48" Modern plain, self contd., c/s | 600. |
| Grinder, Landis 16"x42" plain, 24" wheel | 1,000. |
| Grinder, 12x12x48 Springfield Brandes mag. chuck & segment wheel | 2,000. |
| Hammer, 50 lbs., No. 4 Standard drop | 150. |
| Hammer, No. 5A High Speed riveting | 400. |
| Lathe, 14"x8" Flather, quick change, taper and chuck | 250. |
| Lathe, 18"x9" Chard semi-quick change gear | 400. |
| Lathe, 19"x11" Chard, semi-quick change gear | 425. |
| Lathe, 22"x12" Davis quick change, d. b. g. | 800. |
| Lathe, 42"x20" Fifield with blocks to swing 60" | 1,000. |
| Miller, Whitney, Standard and U. S., hand | 125. |
| Miller, No. 1 Garvin universal, fully equipped | 600. |
| Miller, No. 3B B. & S. heavy duty, all geared head, s. p. d. | 2,000. |
| Miller, Briggs, G. & E. manufacturing, 16" | 200. |
| Miller, No. 5 Becker vertical, no rotary | 500. |
| Miller, No. 7 Becker, Lincoln type | 150. |
| Miller, No. 21 Garvin power feed, oil pump | 150. |
| Miller, Hendey, Lincoln type | 100. |
| Miller, No. 12 Brown & Sharpe production type | 150. |
| Miller, Ingersoll slab, 42"x36"x9" | 1,750. |
| Oil separator, National, about 4 bushel | 75. |
| Planer, 24"x24"x6" Cincinnati, 1 head | 500. |
| Planer, 24x24x8 Fitchburg, 1 head | 400. |
| Planer, 32x32x8 Pond, 1 head | 750. |
| Planer, 36"x36"x12" Cincinnati with 2 heads | 1,500. |
| Press, No. 5 R. & K. o. b. i., 5500 lbs. | 825. |
| Press brake, 10' Ohi power, No. 10 gauge | 1,800. |
| Saw, 6x6 Peerless h. s., d. c. motor \$150, a. c. motor | 175. |
| Saw, Racine metal band, nearly new | 175. |
| Screw machine, P. & W. 14x4, complete | 150. |
| Screw machine, No. 7 Foster 24", p. f. h. | 750. |
| Shaper, 16" Steptoe, crank, back geared, vise and c/s | 425. |
| Shaper, 16" Smith & Mills, back geared vise and countershaft | 450. |
| Shaper, 20" Steptoe, crank, back geared, vise and c/s | 500. |
| Shaper, 20" Cincinnati, crank, back geared, vise and c/s | 850. |
| Shaper, 20" Ohio, crank, back geared, vise and c/s, nearly new | 1,000. |
| Shaper, 25" Steptoe, crank, back geared, vise and c/s | 750. |
| Shaper, 24" Rockford universal combination | 1100. |
| Slotted, 12" Putnam universal | 1,000. |
| Turret lathe, No. 7 Foster for chuck and bar work | 750. |
| Turret lathe, 24" Steinlee, 4" hole, side carriage | 700. |

USED AND REBUILT MACHINERY

FOR SALE BY

Foster Machinery Company, 2613 E. 73rd St., Cleveland, Ohio

12'x14 ga. Loy & Nawrath.

SHEARS.

Canton alligator, cap. 1 $\frac{1}{2}$ ' sq.

Brake, 6', 10 ga., box and pan
Drill, 18-spindle No. 4 Bausch.
Drill, radial, 3 $\frac{1}{2}$ ' Bickford.
Pipe machine 2" Jarecki.

MISCELLANEOUS.

Upsetter, 2 $\frac{1}{2}$ " Acme (steel).

Riveters, Nos. 2-A and 3-A High
Speed, heavy duty.
Welder, butt, 2" round.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St.,

St. Louis, Mo.

PRESSES.

No. 12" Bliss toggle press.
No. 3 $\frac{1}{2}$ A Bliss toggle press.
No. 1 $\frac{1}{2}$ Bliss toggle press.
No. 63 Toledo toggle press.

No. 25 Toledo double acting cam
drawing, geared.

No. 24 Toledo double acting cam
drawing, fly wheel.

PIPE & BOLT THEADING MACHINES.

2 $\frac{1}{2}$ " to 6" Bignal & K. pipe mch.
3" Bignal & Keeler pipe machine.
6" Jarecki pipe machine.
8" Williams pipe machine.

12" Bignal & Keeler pipe machine.

1 $\frac{1}{2}$ " Standard bolt threader.

3" Acme bolt threader.

SCREW AND TURRET MACHINES.

No. 6-A Potter & Johnston. (2)
No. 5-A Potter & Johnston.
2" Warner & Swasey hollow hex.
No. 6 Warner & Swasey cone head.

3"x24" J. & L., geared head.

3"x26" J. & L., geared head.

3" Acme flat turret (2).

BORING MILLS.

4" Niles horizontal.
34" Gisholt turret head, motor dr.
10" Niles vertical, 2 heads.
42" Niles, 3 heads.

54" Niles, 2 swivel heads.

60" Morton Poole, 2 swivel heads.

No. P. & H. boring and drilling
machine.

PLANERS.

24"x24"x28" Pond.
32"x32"x14" Flather.

48"x30"x18" Gray.

42"x42"x28" Wheeler.

SHAPERS.

16" Steptoe b. g. crank.
20" Steptoe plain crank.
22" Barnes back geared.
25" Barnes back geared.
32" Prentice sliding head.
3" arm Dreses radial.

24" Barker crank.

24" Hollingsworth.

DRILLS.

42" arm Morris radial.

4" arm Bickford.

4" arm Dreses single pulley.

MILLERS.

No. 2 Cincinnati with vertical attach.
No. 4 Cincinnati with vertical attach.
No. 3 Owen plain.

No. 3 Rockford hand.

Hendey, Lincoln.

No. 2 LeBlond universal.

LATHES.

15"x10' Cisco, q. c. g.
16"x10' Sidney, q. c. g.
24"x10' LeBlond.
24"x16' Lodge & Shipley.
24"-42"x14" McCabe, 2-spindle.

27"x14' Greaves & Klusman.

30"x13' H. S. & G. with taper att.

34"x18' Greaves & Klusman.

60"x12' New Haven turning.

MISCELLANEOUS.

Bulldozer, No. 9.
Furnaces, cyanide hardening.
Gear cutter, 36" Cincinnati.
Grinder, 12"x40" B. & S. univ.
Grinder, 14"x66" Landis.
Punch & shear, 28" throat, 4" in 4"

Punch & shear, No. 15 Williams-
White, 20" throat.

Shear, Lennox, rotary bevel.

Swager, No. 1 Dayton.

Swager, No. 6 Aetna.

USED AND REBUILT MACHINERY

FOR SALE BY

The Reeve-Fritts Co., 558-560 W. Washington Blvd., Chicago, Ill.

| | |
|---------------------------------------|---|
| Die filer, No. 3 Barry. | Miller, No. 2 Rockford, plain. |
| Drill, 14" Leland h. s. | Miller, No. 3 Chicago hd. & power. |
| Drill, 16" Sipp b. b. | Planer, 24" x 24" x 6' Rockford. |
| Drill, 20" Champion b. g. p. f. | Planer, 24" x 24" x 6' American. |
| Drill, 4-spdl. Foote-Burt 4" cap. | Press, No. 1 Massillon s. s. |
| Drill, 4 spindle Fox, 4" cap. | Press, No. 2-P Am. Can solid bk. |
| Drill, 6 spindle Henry & W. h. s. | Press, No. 6 LaSalle bench. |
| Gear cutter, No. 98 G. & E. spur & b. | Screw machine, No. 2 Foster pl. hd. |
| Lathe, 9x20" Porter-Cable prod. | Shaper, 16" Steptoe b. g. |
| Lathe, 12" x 3" Pratt & Whitney. | Turret lathe, 24" x 26" Pratt & Whitney |

FOR SALE BY

Norton-Broadway Mch. Co., Sixth & Baymiller Sts., Cincinnati, O.

LATHES.

| | |
|------------------------------------|-----------------------------------|
| 36" x 20' Bradford, triple geared. | 13-26" x 14' Putnams, semi-quick. |
| 32" x 19' Wickes, double b. g. | 24" x 14' Lodge & Shipley, q. c. |
| 30" x 16' American, q. c. | 28" x 10' Boye & Emmes, q. c. |
| 30" x 14' Prentice q. c. | 18" x 10' LeBlond q. c. |
| 27" x 14' Pond, q. c. | 20" x 10' Bradford, loose change. |

MILLING MACHINES.

| | |
|------------------------------------|--------------------------------------|
| No. 2 & 3 LeBlond plain. | No. 4 B Brown & Sharpe heavy duty. |
| 26" Oesterlein universal. | No. 4 Cincinnati universal. |
| No. 3 H LeBlond heavy duty, plain. | No. 4 Cincinnati vertical sgl. pul. |
| No. 6 Becker vertical. | No. 3 Brown & Sharpe, vertical. |
| No. 12 Brown & Sharpe plain. | No. 12 Pratt & Whitney, Lincoln type |
| No. 13 Brown & Sharpe, plain. | Owen two-spindle. |

BORING MILLS.

| | |
|---|-----------------------|
| 24" Bullard New Era type, serial 11469. | 42" Gisholt, 2 heads. |
| 36" Niles, 2 heads. | 50" Niles, 2 heads. |
| 34" Bullard, 1 head. | 6" Gray horizontal. |

PLANERS.

| | |
|------------------------------------|---------------------------------------|
| 24" x 24" x 6' Ohio. | 48" x 16' Detrick & Harvey, open side |
| 24" x 24" x 8' Pond, 2 heads. | 48" x 10' Belmer, 4 heads. |
| 24" x 24" x 8' Putnam, 1 head. | 48" x 16' Cincinnati, 4 heads. |
| 32" x 32" x 8' Gray, 2 heads. | 24" x 8' Smith & Silk, 1 head. |
| 30" x 30" x 16' Gray, 2 heads. | Whitcomb crank planer. |
| 32" x 32" x 16' Whitcomb, 2 heads. | |

DRILLS AND RADIALS.

| | |
|--------------------------------------|---|
| 4-spindle Kokomo, 12" overhang. | 3' Morris, single pulley, gear box. |
| 3-spindle Henry & Wright, 7". | 3' Mueller, single pulley. |
| 4-spindle Reed sensitive. | 4' Morris radial, arr. m.d., with mtr. |
| 3-spindle Reed sensitive. | 5' American, semi-univ., sgl. pulley. |
| 6-spindle Reed sensitive. | 5' universal, old style. |
| 3' American single pulley, gear box. | 6' American plain radial, sgl. pul. dr. |

MISCELLANEOUS.

| | |
|---|-------------------------------------|
| Air compressor, 600' Ingersoll, 2 stage | Press, 50 ton Lucas forcing. |
| Automatics, Model B Cleveland (2). | Press, No. 62 Bliss power. |
| Bending brakes. | Punch and shear No. 3 H. & J. d. e. |
| Bolt cutter, 2-sp. Acme 14". | Shears, 6' 8", 10' power. |
| Drill 28" Aurora, tapping att. | Shear No. 252 Niagara pwr., 6' cap. |
| Gear hobber, Cincinnati. | Slotter, 20" Dill. |
| Grinders, Nos. 4 & 120 Gardner disc. | Threading mch., Auto. Mch. Co. |
| Hack saw, 10" Massachusetts. | Turret, No. 3-A Warner & Swasey. |
| Hammer, Bradley helve. | serial 100,756. |
| Hammers, Bradley strap. | Turret lathe, No. 4 Warner & S. |
| Presses, Toledo, Long & Allstater | |
| & Losbough & Jordan inclinable. | |

More than 300 machines tools in stock.

USED AND REBUILT MACHINERY

FOR SALE BY

Arthur P. Gockel,

Bending rolls, 16' of 4" cap.
Oven, japanning, rack type, gas fired.
Planers, plate, 8 and 30" size.
Press, No. 19 Bliss, o. b. i., m. d.
Press, No. 6 s. s. Rock'd grd., 4" str.
Press, No. 4 Toledo, o. b. i., 2 $\frac{1}{2}$ " st.

1817 E. 26th St., Cleveland, Ohio

Press, Cleveland, rack & pinion.
Shear, No. 2 H. & J. guillotine, cap.
24" round.
Slitter, Yoder, gang No. G36 cap. 5
cuts in 11 gauge, motor drive,

FOR SALE BY

W. P. Little Co.,

W. 9th & Front St., Cleveland, O.

LATHES

19"x8' LeBlond production.
24"x10' LeBlond d. b. g. c. g.
4' Morris gear box, m. d.
Style G Cleveland on turntable.
36" Ohl press brake.

18"x8' Lodge & Shipley pat. head.
16"x8' Prentice, taper attachment.

RADIAL DRILLS

Gear cutter, 30" Whitton.
Hack saws, Marvel Nos. 4 & 5.
Hack saws, Atkins Kwikut.
Miller, 28" Cincinnati face.
Pinion cutter, Standard automatic.
Drill, Barnes 4-spindle.
Drill, Barnes 3-spindle.
Drill, Barnes 2-spindle.
Pinion cutter, Bilton automatic.
Partial list. 180 other tools on hand.

PRESSES

Metalwood hydro-pneumatic.
East Iron Wks. open back.

MISCELLANEOUS

Power hammers, Beaudry 75 lbs.
Riveter, Shuster 1" and 1 $\frac{1}{2}$ ".
Splitting shear, S 24 Yoder.
Splitting shear, D 22 Rock River.
Tumbling barrel, Hoevel sand blast.

Send us your inquiries.

FOR SALE BY

Brownell Machinery Co.,

150 Pine St., Providence, R. I.

BORING MILLS

36" Bullard new era, serials 9900 to 11,100 (9).

42" Bullard vertical.

DRILLS.

3' Prentice radial.
23" Snyder, b. g., p. f.
21" Buffalo, new.

20 $\frac{1}{2}$ " Buffalo, new.
20" 4-spindle W. F. Barnes.

GRINDERS.

No. 11 Brown & Sharpe, 4x30.
No. 3 B. & S. cutter and reamer.
C-2-T Grand Rapids drill.
No. 1 B. & S. surface.

20" Whitney wet tool.
No. 26 B. & S. plain.
Walker tool.

MILLING MACHINES

3-No. OY Brown & Sharpe plain.
4-No. O Brown & Sharpe plain.

1-No. 2 Brown & Sharpe plain.
1-No. 13-B Brown & Sharpe.

PLANERS & SHAPERS

26xx26"x8' Whitcomb, 2 heads.
24"x24"x6' Pond.

17"x17"x4' Whitcomb.

SCREW MACHINES.

16" Warner & Swasey, turret lathe, g. f. h.

No. 4 B. & S. hand screw machine.

No. 0 B. & S., wire feed, hand screw machines.

MISCELLANEOUS.

Band saw, 12" Houghton & Richards
metal cutting.

Millers, U. S. hand No. 1.

Blower, No. 8 Boland.

Press, standard power screw 7".

Cornice brake, 4' double truss.

Press, No. 1 Bliss d. a. cam.

Gear cutter, No. 2 $\frac{1}{2}$ Bilton.

Woodworking, Tannowitz double

Index heads, 10" tilting, milling mch.

arbor saw table.

Index centers, planer.

Woodworking, Towsley 36" bandsaw.

USED AND REBUILT MACHINERY

FOR SALE BY

John Ramming Machine Co., First St. & Clark Ave., St. Louis, Mo.
 Boring mills, 60" Colburn; 42" Bullard.
 Drill, No. 513 Baker.
 Gear shapers, 36" Fellows, (2).
 Grinders, 10" x 22" Norton, (2).
 Lathe, 26" x 48" x 20' McCabe, double
 spindle.
 Lathe, 16" x 9' Lehman, geared head,
 motor driven, q. c. g.
 Partial list only. We will be pleased to receive your inquiries.

FOR SALE BY

| | |
|--|--|
| W. H. Hobbs Supply Co., Gear cutter, Reynolds 12" capacity. Gear hobbing machine, special, will cut spur, bevel and mitre gears, complete with countershaft. Lathe, gap, special, 84" swing, geared head with variable speed and countershaft. Miller, No. 4 Cincinnati plain, 16" x 60" slotted table, complete with 220 volt d. c. variable speed motor. | Eau Claire, Wis. \$ 175. 1,250. 1,000. |
|--|--|

FOR SALE BY

Strafer Machinery Company,

| | |
|------------------------------|---------------------------|
| 14th and Provost St., | Jersey City, N. J. |
|------------------------------|---------------------------|

BORING MILLS VERTICAL

| | |
|--|---|
| 14' Niles heavy, swing 18' 4". 10' Betts motor drive. 96" Cincinnati rapid traverse, m. d. 76" Pond heavy 5 step cone, b. d. 72" Betts heavy rapid traverse. Portable boring bars, Underwood, 4" x 8" with 12" heads, grd. feed \$200 each. | 72" N. B. P. heavy rapid traverse. 60" Niles-Bement-Pond, motor dr. 60" Gisholt rapid traverse. 51" N. B. P. speed box 16 speeds. 42" Gisholt rapid traverse. |
|--|---|

DRILLS.

| | |
|---|---|
| 6' American universal, speed box. 5' Prentice speed box drive. 3 1/2' Dreses, speed box, s. p. d. | 22" Barnes upright. 32" Aurora upright. 20" Prentice upright. |
|---|---|

GEAR CUTTERS

| | |
|------------------------------------|-----------------------------------|
| No. 5A Lees-Bradner hobber. | No. 13 Brown & Sharpe spur & bev. |
|------------------------------------|-----------------------------------|

GRINDERS.

| | |
|--|--|
| 12x20 Fitchburg plain. 18"x120" Norton plain. | 24"x144" Landis plain. 8"x40" Morse plain, new. |
|--|--|

LATHES.

| | |
|--|--|
| 42x36' American grd. hd., m. d. 18"x8' Fairbanks 3-step c., d. b. g. 42"x14' Bridgeford g. h., q. c. | 36"x14' Bridgeford g. h., q. c. 22"x10' Drapier cone. 18"x8" Fay Scott 3 s. c., d. b. g. |
|--|--|

MILLING MACHINES.

| | |
|---------------------------------------|---|
| No. 3 Kearney Trecker s. p. d. | No. 3 Pedrick & Ayers plain. No. 1 Brown & Sharpe belt feed. |
|---------------------------------------|---|

PIPE MACHINES.

| | |
|-----------------------------------|--------------------------------|
| 6" Saunders, new dies, belt drive | 8" E. C. & B. with dies, b. d. |
|-----------------------------------|--------------------------------|

PLANERS.

| | |
|---------------------------------|----------------------------------|
| 10"x10"x30' Niles 4 heads b. d. | 42"x8' D. & H. openside 3 heads. |
|---------------------------------|----------------------------------|

PUNCHES AND SHEARS.

| | |
|--|-----------------------------|
| No. 3 H. & J. 36" t., double. | No. 4 H. & J. double 48" t. |
|--|-----------------------------|

| | |
|---------------------------------|-------------------------------------|
| Cleveland 24" t., cap. 1" x 1". | 10' - 3/16" Loy & Nawrath squaring. |
|---------------------------------|-------------------------------------|

MISCELLANEOUS.

| | |
|--|--|
| Beading machine, Bliss. Bending roll, capacity 8"x3". Centering machine, P. & W. 3". Compressor, Ingersoll-Rand 8"x6". Die slotted, Fox. Elevator, d. c. m., portable. Generator, 100 k. v. a. Diesel engine. Hammer, 400 lb. Chamber, steam. | Lathes, Oliver pattern makers. Miller, Burr spline. Roll, 30" tinsmith. Rotators, 5 and 10 ton. Ship augers, 500. Slotted, 34" Niles. Straightener, wire core, to 5/16". Trucks industrial storage battery. |
|--|--|

USED AND REBUILT MACHINERY

FOR SALE BY

United Mchry. & Supply Co.,
 Grinder, Heald 8", magnetic chuck
 No. J 156.
 Miller, No. 3 Brown & Sharpe pl.
 Miller, No. 2 LeBlond plain.
 Rail drill, Pond 2-spindle.

1241 Walton St., St. Louis, Mo.
 Rolls, 8' and 6' drop end.
 Rolls, 45" corrugating.
 Sand mixer, 8' pan.
 Sand mixer, No. 2 Simpson.
 Wheel lathe, 24" Cincinnati.

FOR SALE BY

The O'Brien Machinery Co.,
 Drill, 6" American univ. radial.
 Drill, 32" Aurora, motor driven.
 Drill, 30" Snyder sliding head.
 Gear cutter, 36" Becker-B. auto.
 Gear cutter, No. 24 Whiton, belt dr.
 Grinders, 3 h. p., d. c., dbl. end, (5).
 Grinder, 12" x 36" Cincinnati univ.
 Grinder, No. 2 Norton universal.
 Hammer, 2000 lbs. Chambersburg,
 double frame, steam forging.
 Hammer, 1100 lb. N. B. P., sgl. fr.
 Hammer, 100 lb. Little Giant, belt.
 Lathe, 36" x 18" Schumacher & Boye,
 triple geared.
 Lathe, 26" x 48" x 14" McCabe-2-in-1,
 belt.
 Lathe, 30" x 30" Harrington.
 Lathe, 28" x 26" L. & S., b. d., q. c. g.
 Lathe, 26" x 30" Pond, with motor.
 Miller, Newton duplex, planer type,
 table 21" x 12".
 Miller, No. 4 Brown & Sharpe plain.
 Miller, No. 4 LeBlond h. d., plain.
 Milling mch., No. 3 Garvin duplex.
 Pipe machine, 2" Landis, belt.

113 N. Third St., Philadelphia, Pa.
 Pipe machines, Oster portable, gas.
 drive, all sizes.
 Pipe machines, 2", 4", 6", 8" & 12"
 Oster, Cox, Williams, Eaton-Cole
 & Burnham and Jarecki makes,
 belt or motor driven, comp. stock.
 Planer, 36" x 36" x 24", Bement, 4 hds.
 Planer, 36" x 36" x 12" Cincinnati, 2 hds.
 Press, No. 73½ Bliss trimming press.
 Press, No. 37 Niagara, 1100 lb. fly-
 wheel, solid back.
 Punch, No. 14 H. & J. 20" thrt., 4 x 4
 Punch, No. 1 Royersford double end,
 4" x 4".
 Rolls, 14" bending, belt, drop end,
 rolls 9½" and 8½".
 Saw, 16" Higley cold, cap. 4".
 Saw, 30" Espen-Lucas, cap. 8".
 Shaper, 16" Ohio, single grd. crk.
 Shaper, 18" Cincinnati, one travel-
 ing head, 2 tables.
 Shaper, 23" Queen City, b. g. crk.
 Shear, Niles, plate splitting, 1" cap-
 acity, motor driven.

FOR SALE BY

Clinton Machinery Co., 126-128 S. Clinton Street, Chicago, Ill.

| | |
|---|---------|
| Arbor press, Hercules 15 ton power. | \$ 250. |
| Bolt cutter, 1" Landis with dies. | 250. |
| Bolt cutter, 2" Standard with dies. | 200. |
| Boring mill, 34" King rapid power trav. feeds with chuck 98% new. | 2000. |
| Drill, 20" 2-spindle Hoefer power feed. | 125. |
| Drill, 24" Barnes & Prentice sliding head, back geared power feed each. | 125. |
| Drill, 42" Barnes sliding head, back geared power feed (2), each. | 200. |
| Drill, No. 1 Knight milling and drilling. | 175. |
| Grinder, 6" x 32" Norton cylindrical. | 300. |
| Grinder, No. 14-30" Besly disc. with press. | 300. |
| Hammer, 30 lb. Bradley compact motor drive. | 200. |
| Hammers, No. 14-3A-4A-5A high speed riveting. | 100. |
| Hack saw, 6x8 Racine & Peerless high speed, each. | 200. |
| Hack saw, 9x9 Peerless high speed. | 850. |
| Lathe, 24" x 8" American geared head s. p. d. q. c. g. with turret. | 450. |
| Lathe, 14" x 12' Monarch geared head motor drive with motor. | 1200. |
| Millers, No. 2 Cleveland universal s. p. d., like new. | 550. |
| Miller, No. 1½ American plain. | 225. |
| Press, No. 61 Bliss, s. s. reducing, 4" stroke. | 175. |
| Press, No. 88 Bliss, straight side reducing 2½" stroke. | 700. |
| Shaper, 24" American back geared complete. | 500. |
| Shaper, 15" Potter & Johnson complete with universal table. | 325. |
| Turret lathe, No. 3 Wood tilted p. f. to turret. (4) 95% new, each. | |

Just a partial list, large stock on hand, send us your inquiries.

USED AND REBUILT MACHINERY

FOR SALE BY

A. M. Stoehr Machinery Co.

Air compressor, Chicago Pneumatic, 22x14x16, with 150 h. p. slip ring motor.
Balancing machine, Gisholt precision.
Bolt cutter, 3-sp. Acme, 1" cap.
Drills, 6' American triple purpose.
Hammers, power (7).
Keyseater, No. 2 Mitts & Merrill.

106 S. Jefferson St., Chicago, Ill.

Miller, No. 24 Rockford plain, vertical attachment.
Presses, Michigan Nos. 4, 5 & 65.
Punch, & shear, No. 5 Southwark, E. F. Cleveland and others.
Punch & riveters, Rock River & Kling.
Separators, oil, No. 3 National, No. 1 Springfield.
Wire straighteners, up to 3" cap.

FOR SALE BY

C. C. Howarth Co.,

"A Dollar for a Dollar"
Automatics, No. 6-A P. & J., serial numbers above 18,000 (5).
Automatics, No. 24 New Britain, (2)
Drill, No. 64 D Moline.
Gear cutters, No. 4 Brown & Sharpe 48" (2).
Gear cutters, No. 4 Brown & Sharpe 36" (3).
Gear cutter, No. 3 Brown & Sharpe 26".
Gear cutter, No. 12 Barber-Colman.
Generators, No. 5-A Lees-Bradner 14", (2).
Grinder, Landis 10"x72", s. c. t.

1457 Franklin St., Detroit, Mich.

And about 200 other high grade machines.

FOR SALE BY

M. A. Wertman Machinery Co., 427 Penton Bldg., Cleveland, Ohio

Air compressor, Ingersoll-Rand 9"x8 plate valves.
Brake, 8"x16 gauge Robinson power brake.
Broach, No. 3 J. N. La Pointe double, like new.
Bolt cutters, 18" Acme single, rebuilt—(2).
Drill, radial, 3" Western, heavy duty, single pulley drive.
Drill, radial, 4" Hammond sensitive, tapping attachment s. p. d. or m. d.
Drill, Demco, ball bearing sensitive 12000 r. p. m., bench type.
Forging machine, 18" Acme, iron frame, fine condition.
Grinder, Landis, 10"x72" self contained motor drive excellent condition.
Hammer, No. 3A High Speed riveting m. d.
Hammer, Bradley 500 lb., upright helve, guaranteed good as new.
Hammer, Beaudry, 200 lb., used very little, belt drive.
Miller, U. S. hand miller No. 1.
Milling machine, Brown & Sharpe No. 3 plain, power quick traverse table.
Milling machine, Milwaukee, No. 2A mfg. type, single pulley drive.
Milling machine, Garvin No. 2 duplex.
Milling machine vertical attachment for No. 3 Kempsmith miller.
Polishing lathes, double end ball bearing, (5).
Polishing machine, Blevney vertical, belt polishing machine.
Press, Ferracut No. P3 punching press, excellent condition, weight 2600 lb.
Press, Cleveland No. 34 punching press, excellent condition, weight 5000 lb.
Press, Cleveland No. 52 s. s. trim, with side shear, new condition.
Press, Cleveland No. 6-I, o. b. i. brand new, weight 3300 lb.
Press, Toledo No. 3 o. b. i. geared, 44" stroke, weight 2300 lb.
Press, Minster No. 2 o. b. i., new, never used, weight 1450 lb.
Thread miller, Coulter hob thread miller, perfect condition.
Turret lathe, 28" Gisholt complete with tools.
Turret lathe, 24" Gisholt motor driven, 64" hole thru spindle.
Turret lathes, Warner & Swasey, No. 6 g. f. h. (3).
Welder, Federal 10 k w spot welder, 220 volt a. c., new condition.

USED AND REBUILT MACHINERY

FOR SALE BY

Deron Bros. Electric Co. - **325 North B Street, Hamilton, Ohio**

Air compressor, Curtis No. 40.
Drill, Meyers 16" column.
Drill grinder, pedestal, New Yankee.
Lathe, 11" Seneca Falls with complete attachments.
Lathes turret, Garvin No. 1.
Screw machines, automatic, Acme No. 52.
Screw machine, automatic, Cleveland 8-12.
Screw machine, automatic, Cleveland 12".
Oil extractor, centrifugal.
Tapping machines, 3/16" Rickert & Shafer (2).
Tapping machines, 8/16" Rickert & Shafer (2).
Many of the above carry a large assortment of extra tools.
Office and shipping room equipment.

Send for list.

FOR SALE BY

Miles Machinery Co. - **Saginaw, W. S., Mich.**

Automatics, Nos. 5A & 6A P. & J.
Compressor, 12" x 10" Ingersoll-R.
Drill radial, 6" N.-B.-P. universal.
Drill, mult., 34-spdl. Natco No. 30.
Drill, rail, No. 3 Foote-Burt, 8-spdl.
Drill, sensitive, 2, 3 & 4 spdl. Allen.
Gear cutter, 60" x 20" G. & E.
Grinder, surface, No. 2 W. & M.
Grinder, 18" x 96" Norton.
Hammer, 600 lb. N.-B.-P. steam.
Keyseater, 2 1/2", No. 4 Motts & M.
Lathe, 12" x 6" Hendey.
Lathe, 20" x 8" LeBlond.

Lathe, 36" x 18" Schumacher & Boye.
Lathe, 52" x 16" Pittsburgh.
Mill, horiz., 2 1/2" bar Cleveland.
Mill, boring, 96" Beits.
Miller, 40" Ohio tilted rotary.
Miller, No. 4 Cincinnati high pwr.
Planer, 42" x 36" x 16" Cleveland o. s.
Planer, 48" x 48" x 10' Liberty.
Planer, 72" x 72" x 16' Pond.
Press, No. 2 1/2 V. & O. o. b. i.
Press, Nos. 64 and 65 Consolidated.
Slotters, 14" and 18" Niles.
Threaders, 2", 2 1/2" and 3" Acme.

FOR SALE BY

Brown Machinery Co. - **2323 N. 9th St., St. Louis, Mo.**

Bowers, Nos. 3, 7 and 9 Sturtevant.
Broach, No. 1 La Pointe.
Drills, Barnes 20" with tappg. attmt.
21" C-O & Champion; 22" Barnes;
25" American; 24" & 32" Mechanics.
Drill, multiple, No. 66-D Moline
"Hole Hog".
Drills, radial, 4" Bickford; 3" Prentice.
Gear hobber, G. & E. No. 1716.
Grinder, edge, No. 302 Safety
Emery Wheel Co.
Grinders, emery, St. Louis & W.;
large stock new at 50% disc.
Grinders, disc, No. 6 Bealy; No. 202
Badger.
Grinders, drill, W. & M.; G.R. B&T.
Grinders, plain, 10x36" Norton;
8x36" B. & S.; 12x36" Modern.
Grinder, universal, No. 12 B. & S.
Hammer, helve, 40 lb. Bradley; No.
2 Pettingell.
Lathes, turret, 16" Gisholt, Omar,
Foster, J. & L.

Lathes, No. 5A Potter & Johnston.
Lathes, 16" Monarch; 18" Lodge &
Shipley; 26" Putnam; 30" Blaisdell.
Millers, No. 4 Hendey; No. 0 1/2
LeBlond; No. 2 Hendey Norton,
universal; No. 7H Becker.
Planer, 42" x 42" x 10' Pond.
Press, arbor, No. 3 A Geier.
Presses, o. b. i., Niagara 44.
Presses, hydraulic, 36x72" Elmes.
Press, hydraulic, Lourie 200 ton.
Profilers, Putnam; Reed-Prentice.
Riveters, No. 2 Grant; No. 4-V-3
Grant, mr. dr.
Shaper, 14" Barker 12"; Whipp.
Shears, rotary splitting, No. 134
Marshalltown 4' thrt.; 4" cap.;
No. 13 Pettingell.
Shear, square, 372 Pexto, 10 ga.;
power.
Welders, spot, Agnew 4" capacity.

And many others. Write for list 130.

USED AND REBUILT MACHINERY

FOR SALE BY

H. L. Morton Machinery Co., 1078 Carlyon Road, Cleveland, Ohio

| | |
|---|----------|
| Die sinker, Keller automatic E-2, (new) | \$2,900. |
| Drill, Sigourney 2-spindle, No. 1 taper | 85. |
| Drill, Champion 20", back geared, power feed | 95. |
| Drill, Rockford 22", back geared, power feed | 150. |
| Drill, Bausch multiple, 10-spindles, No. 2 taper | 500. |
| Lathe, Sidney heavy duty, 19"x8", taper attachment, p. c. g. | 325. |
| Milling machine, Cincinnati No. 4 plain, high power, s. p. d. | 1,350. |
| Milling machine, Cincinnati No. 4 plain c. p. d., vertical att. | 925. |
| Shaper, Pratt & Whitney 15", crank | 150. |
| Turret lathe, W. & S. No. 2A hollow hexagon, for chuck work | 125. |
| Turret lathe, Cincinnati-Acme 38"x36", single pulley drive | 1,100. |

FOR SALE BY

Nelson Machinery Co., 123 N. Pearl St., Green Bay, Wis.

| | |
|---|--|
| Boring mill, 7' Bickford, vert. with 2 swivel heads, cone drive. | |
| Drills, Detroit 8-spindle, semi-auto. (2) each, \$400. | |
| Grinder, Landis crank pin, 16x72, \$400. | |
| Drill press, 5' Dreses full universal radial, with m. d. arranged. | |
| Pipe machine, No. 14 Jarecki 2 $\frac{1}{2}$ to 8", q. c., adjustable dies. | |
| Riveter, No. 81 Grant rotary, $\frac{1}{2}$ h. p., 3 ph. 60 cy., 220 volt vertical motor. | |
| Shaper, 16" Cincinnati crank. | |
| Shaper, Fellows No. 62 gear, fine condition, \$375. | |

FOR SALE BY

J. L. Lucas & Son, Inc., - - - 3 Fox St., Bridgeport, Conn.
BORING MILLS

42" Bullard.

GRINDERS

| | |
|---|-----------------------------|
| New No. 2 Reed surface chuck. | No. 1 Morse universal, new. |
| 14" P. & W. surface ball bearing spindle, magnetic chuck. | No. 2 Morse universal, new. |

LATHES

| | |
|---|---|
| Adams short cut lathe. | 18x10 Hendey yoke head lathe |
| 14"x 6' Hendey yoke head, taper draw bar, reliever. | 26"x14' Bridgeford heavy duty engine lathe, quick change. |

MILLERS

| | |
|--|---------------------|
| 1 B Milwaukee plain, s. p. d. slotting attachment. | 18" Cincinnati mfg. |
|--|---------------------|

PRESSES

| | |
|---|--------------------------------------|
| 400 ton Perkins coining. | No. 24 Bliss knuckle joint embossing |
| D-42 Peck, Stow & Wilcox capacity No. 14 gauge soft steel, new. | |

SHEAR

| | |
|------------------------------|--------------------------------|
| 24" Stockbridge, cone drive. | 4-16" Stockbridge, cone drive. |
|------------------------------|--------------------------------|

WIRE MACHINE

| | |
|---------------------------------------|--|
| 2-4"x14' Schuster wire straighteners. | |
|---------------------------------------|--|

New and Used Wood-Working Machinery

For a large list of new and used wood-working machinery, consult **Wood-Working Machinery**—a monthly publication similar to this, but devoted to the advertising of wood-working and saw-mill machinery and allied equipment.

A copy may be had free of cost on application to the publisher, Hitchcock Publishing Co., 508 S. Dearborn St., Chicago, Ill.

USED AND REBUILT MACHINERY
FOR SALE BY

General Machinery Corporation, 170 Summer St., Boston, Mass.

LARGE TURRET LATHE
Houston-Stanwood-Gamble turret lathe, 42" swing with heavy round turret.

MISCELLANEOUS WANTS

WANTED BY

Box 64, c/o Hitchcock Pub. Co., 508 So. Dearborn St., Chicago, Ill.

SCREW MACHINES.

We are in the market for No. 52 Acme 4-spindle screw machines. Must be in good running condition, and priced low for cash. Motor drive preferred.

WANTED BY

Box No. 66, c/o Hitchcock Pub. Co., 508 S. Dearborn St., Chicago

6" Gleason.

No. 12 Barber-Colman.

Pratt & Whitney Thread Miller.

No. 3 Barber-Colman.

State price, serial number, location, condition, guarantee and age in first letter.



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the Best Plants in the Country

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When you buy a "Milwaukee" Rebuilt you are not buying a used or worn out milling machine — you are buying unused mileage, measured in terms of dependable and accurate service.

Every used machine returned to the factory for rebuilding is stripped to the naked castings — every part is cleaned and checked for wear. The column, knee, saddle, and table are replanned or rescraped and all worn parts of the mechanism replaced. They are assembled on the same floor and by the same experts as new machines, and they carry the new machine accuracy guarantee.

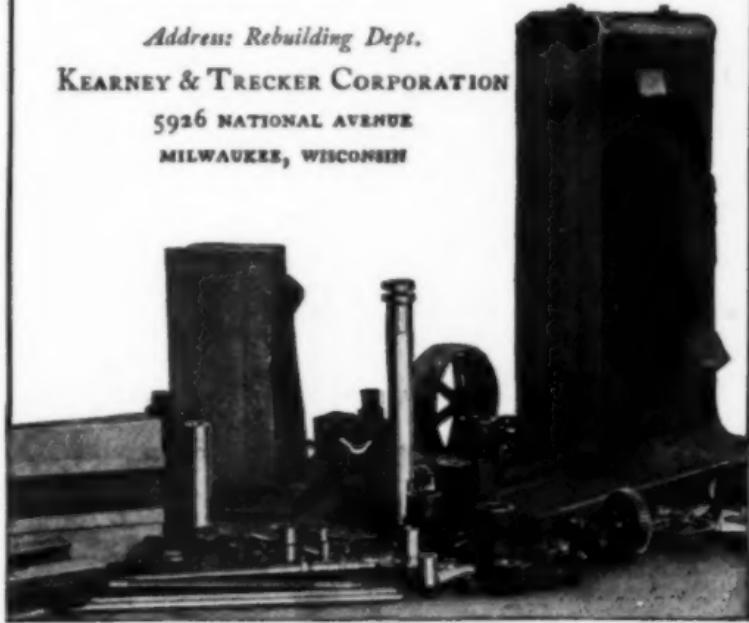
Factory Rebuilt K & T milling machines are like new, but cost much less. Send for catalog 33 and list of rebuilt Milwaukee Millers.

Address: Rebuilding Dept.

KEARNEY & TRECKER CORPORATION

5926 NATIONAL AVENUE

MILWAUKEE, WISCONSIN



\$\$ Kinsey's Dollar Savers \$\$ USED MACHINE TOOLS

B-2937—Millholland No. 3 Wire Feed Screw Machine, geared head chain motor drive including 2 H. P. Hobart Bros. motor, 1200 R. P. M., A. C., 3 phase, 60 cycle, 220 volts, pan and pump, power feed turret, screw longitudinal adjustment to cut-off slide, front and rear tool post complete, automatic chuck, collets, bar feed attachment complete with stock stands, air chuck attachment fitted and operating all the following chucks, which are included: 8" 3-jaw universal chuck, 12" 2-jaw revolving jaw chuck for valve bodies, all tools for cut-off slide, and tools for turret **\$625.**

B-2411—Bessemer 50 H. P., 2 cycle, Gas Engine, 180 R. P. M., Serial 11181, single cylinder, horizontal, with crown pulley 44" diam., 216" wide, with friction clutch and outer bearing, with adjustable pillow block, equipment includes gas pressure regulator, thermometer, and force feed lubricator, gas valve, etc. **\$400.**

B-2230—Bossert Die Slotting Machine with 12" round work table having two T-slots and revolving by hand wheel and worm; machine has hand longitudinal feed and hand transverse feed, and is driven by 3-step cone, 2" belt, with tight and loose pulley, stroke to tool is about 3", and provision for relieving edge on return stroke; height from table up to bottom of ways 6 1/4" **\$350.**

B-3090—Baker 18" Keysester with countershaft, and three fairly large 1 1/4 to 2 1/4 bars and bushings **\$400.**

B-1699—Bliss No. 75 1/2 Straight Side Flywheel Press, with 6" stroke, 6" shank, side trimming attachment and bolster; takes 24" between housings, has bed area 23x23, and flywheel 2300 lb. **\$750.**

B-1967—Bertsch Class D Single End Punching Machine, solid knee, 24" throat, capacity 1/8" thru 1/2", and 2 1/4" thru 12 gauge, belt driven, with adjustable knockout, with punching tools, ser. 5432. **\$650.**

B-2500—D. H. Stoll Co. Power Squaring Shear Type 336, serial 33055, shear 36" long for 10 gauge, 15" gap, overhead drive, geared drive from flywheel, table 48" long, 16" wide, with gauge in rear **\$475.**

B-2334—Cincinnati 60"x60"x14" Spur Geared Planer, widened pattern, with two rail heads, power elevator, countershaft for belt drive, table 50" wide, 24" between center of V's, equipment includes one reach block to fit clapper box as follows: 5" wide, 7 1/2" high, 26" reach, with clamp bolts for tools. **\$1100.**

The E. A. Kinsey Company
331-335 West Fourth St., Cincinnati, Ohio

BRANCHES: INDIANAPOLIS, IND. HAMILTON, OHIO. DAYTON, OHIO.
LOUISVILLE, KY. COLUMBUS, OHIO.

Good Used Machine Tools

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AUTOMATIC SCREW MACHS.

- 1- $\frac{3}{4}$ " Cleveland Automatic
- 1- $\frac{7}{8}$ " 4 Spindle Gridley.
- 3- $1\frac{1}{4}$ - $1\frac{1}{2}$ " Cleveland
- 2-No. 515 National Acme
- 2-No. 53 National Acme
- 1-No. 5A Potter & Johnston
- 2-No. 6A Potter & Johnston

VERTICAL AND HORIZONTAL BORING MACHINES

- 1-24" Bullard Rapid Production
- 1-No. 6C Bissell, 3 $\frac{1}{4}$ " bar
- 1-Bement-Miles, 5 $\frac{1}{2}$ " bar
- 1-Landis, 3 $\frac{1}{2}$ " bar, Floor Type
- 1-Niles-Bement Pard, 4 $\frac{1}{2}$ " bar

DRILLS

- 1-20" Silver
- 1-3 Spindle W. F. & John Barnes
- 1-4 Sp. Henry & Wright, Model K

GRINDERS

- 1-No. 1 Morse
- 1-No. 3 Morse
- 1-10"x36" Norton
- 1-No. 2 Brown & Sharpe Universal
- 1-No. 2 Brown & Sharpe Plain
- 1-No. 4 Brown & Sharpe Universal
- 2-No. 60 Heald
- 1-No. 3 Rivett Internal
- 1-Rivett Radius
- 1-Blevney Production
- 1-No. 14 Gardner
- 1-No. 22 Heald vert. Rotary

LATHES

- 2-13"x5" Willard
- 4-16"x6" Porter
- 1-16"x6" Oliver, Taper Attach.
- 1-18"x6" Lodge & S. Gd. Head.
- 1-18"x8" Reed Prentice, Gd. Hd.
- 1-24"x12" Bradford
- 1-36"x16" Springfield
- 1-50"x28" Fitchburg
- 1-26"x10" LeBlond Univ. Cr. Sh.

MILLING MACHINES

- 1-No. 3 Garvin
- 1-No. 6 Whitney
- 1-No. 0 $\frac{1}{2}$ LeBlond
- 1-12" Cincinnati
- 1-No. 3 Cincinnati Pl. Hi Power
- 1-No. 3 Becker Vertical
- 1-No. 2 Cincinnati Vertical
- 1-No. 4 Cincinnati Vertical
- 1-No. 4 Becker Vertical
- 1-No. 5 Becker Vertical
- 1-No. 5 Brown & Sharpe Vertical

- 1-No. 6 Becker Vertical
- 1-No. 12 Brown & Sharpe
- 2-12" P & W. Automatics
- 1-Newton Slab Miller (Planer Ty.)
- 1-No. 1 $\frac{1}{2}$ Garvin Duplex—new

PLANERS & SHAPERS

- 1-14" Flather
- 1-16" Garvin
- 1-36"x26"x10' Whit., 2nd Belt
- 1-36"x8" Pond, Motor Drive
- 1-36"x36"x18" Cincinnati
- 1-40"x40"x10" Flather
- 1-60"x60"x20" Putnam
- 1-72"x72"x22" Niles
- 1-84"x56"x16" Gray

PRESSES—POWER

- 1-No. 18 Bliss
- 1-No. 19 Bliss
- 1-No. 68N Bliss, Double Action
- 1-No. 42 Bliss
- 1-No. 42 V. & O. Horning
- 1-No. 2 Sidney
- 1-No. 3 Consolidated
- 1-No. 4 V. & O.
- 1-4 $\frac{1}{2}$ " Rudolph & Krummell
- 1-No. 4 Bliss, Stiles
- 1-No. 5D Standard
- 1-No. 101 V. & O.
- 1-No. 103 V. & O. Geared
- 1-No. 73 $\frac{1}{2}$ Bliss
- 1-500 Ton Mesta, Hydraulic
- 1-No. 6 Beaudry Hammer
- 1-No. 1 $\frac{1}{2}$ Standard Drop Hammer
- 2-Miner-Peck Knuckle Joints

SCREW MACHINES

AND TURRET LATHES

- 1-No. 1 Warner & Swasey
- 1-No. 3 Foster
- 2-21" Cisholts
- 1-3"x36" Jones & Lamson
- 1-18" Libby
- 1-24" Cisholt

MISCELLANEOUS

- 1-Newton Cold Saw
- 1-Keller Die Sinker
- 1-Farwell Gear Hobber
- 1-Pratt & Whitney Gun Barrel Drilling Machine
- 6-No. 3 26" B. & S. Gear Cutters
- 1-Nutter & Barnes Cold Saw
- 1-5 Ton Niles Crane, 23' span
- 3-36H. G. & W. Gear Hobbers
- 1-Type 36, Stoll Slitter
- 1-Reynolds Auto. Screw Driving

If the machines you need are not herein listed send us your requirements. We can fulfill your needs

WIGGLESWORTH MACHINERY CO., 170 Summer St., BOSTON, MASS.

Simmons "Res

A few selections from our stock of

BORING MILLS

- 1-16' Niles-Bement-Pond Vertical.
- 1-14' Niles-Bement-Pond Vertical.
- 1-10' Niles-Bement-Pond Vertical.
- 1-10' Niles Vertical.
- 1-10-16' Niles Vertical.
- 1-8' Sellers Vertical.
- 2-8' Betts Vertical.
- 1-7' Bullard Vertical.
- 1-6' Niles-Bement-Pond Vertical.
- 1-62" Niles-Bement-Pond Vertical.
- 2-44" Niles-Bement-Pond Vertical.
- 1-36" Gisholt Vertical.
- 1-36" Bullard New Era.
- 1-24" Bullard Rapid Production.
- 1-No. 9 D & H Horizontal.
- 1-No. 1 D & H Horizontal.
- 1-No. 1 Barrett Horizontal.
- 1-No. 3 Barrett Horizontal.
- 1-No. 3 Barrett Horizontal.
- 1-8" Bar Niles-Bement-Pond Horiz.
- 1-6" Bar Esper-Lucas Floor Type.
- 1-7" Bar Newton Cylinder.

DRILLS

- 1-30" Henry & Wright Class H.
- 1-4" Bickford Plain.
- 1-8" Western Plain.
- 1-4" Bickford Plain.
- 1-7" Dreses Plain.
- 1-8" Bickford Universal.
- 1-4" American Universal.
- 2-One-Spindle Avey Bench.
- 1-Two-Spindle Edlund No. 2-B.
- 2-Three-Spindle Rockford Gang.
- 1-Three-Spindle Edlund No. 2-B.
- 5-Four-Spindle Rockford Gang.
- 1-Four-Spindle Leland-Gifford B.B.
- 1-Seven Spindle Henry-Wright B.B.
- 1-No. 4 Baush Multiple.
- 1-No. 30 Natco Multiple Tapp. Att.
- 1-No. 15 Natco Multiple Spindle.
- 1-No. 11-D Moline Four-Spindle.
- 1-24" Barnes Sliding Head.
- 1-30" Prentice Sliding Head.
- 1-42" Cincinnati-Bickford Slid. Hd.
- 1-No. 310 Baker Heavy Duty.
- 1-No. 2-D Colburn Heavy Duty.
- 2-No. 4-D Colburn Heavy Duty.

BROACHING MACHINES

- 2-No. 3 LaPointe Double.
- 2-No. 3-A LaPointe Single.
- 1-No. 4 LaPointe Single.

GEAR CUTTERS

- 1-No. 13 Brown & Sharpe.
- 1-No. 1 Cross Gear Rounder.
- 6-18" Gleason Bevel Generators.
- 1-24" Gleason Bevel Gear Planer.
- 1-No. 14" Standard Automatic.
- 1-No. 3 26" Cincinnati Automatic.
- 1-No. 4 36" Cincinnati Automatic.
- 1-12" G and E Gear Hobber.
- 1-No. 36-H G & E Hobber.
- 1-36" G and E Spur.
- 1-60" Brown & Sharpe Spur.
- 1-72" Brown & Sharpe Spur.
- 1-No. 96-H G and E Hobber.
- 2-90" Pratt-Whitney.
- 1-No. 12 Barber-Colman Hobber.
- 1-No. 3 Barber-Colman Hobber.

MILLERS

- 5-SD Becker Continuous Millers.
- 3-CS Becker Continuous Millers.
- 1-No. 5 Brown & Sharpe Vert.
- 1-No. 5 Becker Vertical.
- 1-No. 4 Cincinnati Vert.
- 1-No. 3 Cincinnati Vert.
- 1-No. 20 Garvin Vertical.
- 1-No. 14 Garvin Vertical.
- 1-No. 5 Cincinnati Plain.
- 1-No. 4 Cincinnati Plain.
- 2-No. 3 Kempsmith Plain.
- 2-No. 3 Cincinnati Pl. Gd. Hd.
- 1-No. 3 Le Blond Plain.
- 1-No. 2-B Milwaukee Plain.
- 1-No. 2 Kempsmith Plain.
- 1-No. 2 Rockford Plain.
- 1-No. 14-B and Sharpe Plain.
- 1-No. 1 Kempsmith Plain.
- 1-No. 1 Oesterlein Plain.
- 1-No. 13 Garvin Plain.
- 1-28" Cincinnati Automatic.
- 2-18" Cincinnati Automatic.
- 2-12" Pratt-Whitney Auto.
- 1-8" Pratt-Whitney Auto.
- 1-72x72x24' N.-B.-Pond Planer type.
- 2-66x62x15' Ingersoll Planer type.

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1000 guaranteed “Restored” Machines

- 1-59x20x12' Ingersoll Planer type.
- 1-56x40x12' Newton Planer type.
- 1-40x22x6' Ingersoll Planer type.
- 1-48x36x14' Ingersoll Adj. Rail.
- 1-32x28x16' Ingersoll Planer type.
- 1-No. 2 Garvin Duplex.
- 1-No. 3⁴ Pratt-Whitney Duplex.
- 3-No. 7-H Becker Lincoln type.

PLANERS

- 1-120"x120"x20' Bement.
- 1-120"x72"x16' Niles-Bement-Pond.
- 1-84" Bement Rotary.
- 1-72"x72"x18' D. & H. Openside.
- 1-60"x60"x14' Powell.
- 1-48"x48"x14' Woodward-Powell.
- 1-48"x48"x12' Niles-Bement-Pond.
- 1-48"x48"x10' Cincinnati.
- 1-36"x36"x14' Niles-Bement-Pond.
- 1-36"x36"x12' D & Harvey Openside.
- 1-36"x24"x12' D & Harvey Openside.
- 1-30"x30"x18' Cincinnati.
- 3-30"x30"x12' Niles-Bement-Pond.
- 1-26"x26"x6' Gray.
- 3-24"x24"x10' Whitcomb-Blaisdell.
- 1-24"x24"x8' Cincinnati.

LATHES

- 1-8"x60" Lo-Swing.
- 1-24"x36" Lodge-Shipley Marvel.
- 3-14"x6" Pratt-Whitney.
- 1-14"x6" Lodge-Shipley.
- 1-14"x6" American.
- 2-16"x5" Monarch.
- 1-16"x6" Springfield Tool Room.
- 1-16"x6" Hendey Tool Room.
- 1-17"x8" LeBlond.
- 1-17"x10" LeBlond with turret.
- 1-18"x8" American.
- 1-18"x10" Lodge-Shipley.
- 1-20"x12" Whitcomb-Blaisdell.
- 1-20"x20" Reed.
- 2-24"x12" Reed-Prentice.
- 1-24"x14" Reed-Prentice M. Drive.
- 2-26"x12" Niles-Bement-Pond.
- 1-28"x18" Schumacher-Boye M. Drive.
- 1-28"x28" Hamilton.
- 2-30"x12" Niles-Bement-Pond.
- 1-30"x12" Whitcomb-Blaisdell.
- 1-36"x14" Bridgeford M. Drive.

- 1-36"x14" Putnam Motor Drive.
- 1-36"x20" Bridgeford Motor Drive.
- 1-42"x24" Niles-Bement-Pond.
- 6-42"x39" Putnam 2-carriages M. D.
- 1-48"x14" Pond Geared Head.
- 1-48"x22" Pond Geared Head.
- 1-50"x36" Pittsburgh M. Drive.
- 1-54"x34" Bement Belt Drive.
- 1-66"x40" Putnam Motor Drive.
- 1-72"x58" Niles-Bement-Pond.
- 1-90" Putnam Mogul Type Wheel.

MISCELLANEOUS

- 1-No. XB Ingersol Compressor.
- 1-No. 0 Williams-White Bulldozer.
- 1-No. 1 Williams-White Bulldozer.
- 1-3" H-Rogers Cut-off.
- 1-No. 1-A Gorton Engraver.
- 1-No. 2 W-White Eyebender.
- 1-Fischer Oil Groover.
- 1-300-lb. Bradley Hammer.
- 1-125-lb. Bradley Hammer.
- 1-3000-lb. Chambersburg Hammer.
- 1-No. 2⁴ Baker Keyseater.
- 1-No. 3 Catlin Keyseater.
- 1-No. 11 D-Slate Marker.
- 1-7" Baker Tapping Machine.
- 2-4" Bignal-Keeler Threading.
- 1-6" Oester Threading.
- 1-12" Ajax Upsetter.
- 1-12" Acme Upsetter.

PUNCH AND SHEARS

- 1-No. 3 Hilles-Jones Coping.
- 2-No. 4 Hilles-Jones.
- 1-No. 5 Hilles-Jones.
- 2-No. 6 Hilles-Jones.
- 1-No. 0 Hilles-Jones Double.
- 1-No. 2 Hilles-Jones Angle.
- 1-5 x 5 Carlin Alligator.

PRESSES

- 1-No. 167^{1/2} Toledo Toggle Press.
- 1-200-ton Hydraulic Wheel.
- 1-15-ton Lucas.
- 1-No. 69 Bliss.
- 1-No. 77 Bliss.
- 1-No. 56 Toledo.
- 1-No. 5 Stiles-Bliss Geared.

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REAL VALUES

RADIALS AND UPRIGHT DRILLS

- 7¹ Fosdick Plain, cone pulley.
- 6¹ N. B. P. Plain Radial, motor drive.
- 6¹ & 5¹ Cinc-Bick. Pl. Rad., g. b. d.
- 6¹ American Tr. Grd. Pl. Radial, g. b. d.
- 5¹ American Tool Wks. t. g. Pl., g. b. d.
- 5¹ American Triple Purp. Plain Radial, enclosed head, latest type.
- 4¹ Dreses H. D. Pl., Radial, g. b. d.
- 4¹ American Triple Geared Plain Radial, g. b. d. (3).
- 3¹ Morris Plain, gear box drive.
- 6¹ N. B. P. Semi-Univ., m. d. thru gr. box.
- 4¹ Carlton b. b. Sensitive, tapping attach.
- 4¹ Hammond b. b. Sens. Radial.
- 3¹ American Sens. b. b. Radial, tap. att.
- 2¹ 1/2¹ Carlton b. b. Sens. Radial, t. a.
- No. 1 W. F. & John Barnes Horizontal.
- 34¹ & 28¹ W. F. & J. Barnes Up., latest.
- 26¹ W. F. & J. Barnes Upr., t. a., late.
- 20¹ Reed-Prentice Upright.
- 36¹ Aurora Upright Drill, tapping att.
- 36¹ & 32¹ Aurora Uprights, t. a.
- 25¹ Superior (Kokomo H-S) Upr.
- 25¹ Weigle Upright, latest type.
- 26¹ Barnes ALL GEARED.
- 25¹ Snyder Upright Drill.

ENGINE AND TURRET LATHES

- 38¹ x 42¹ Johnson Tr. Grd., s. c.
- 32¹ x 26¹ Pond standard change.
- 36¹ x 20¹ Bridgeford grd. hd., q. c., late.
- 36¹ x 18¹ N.-B.-P. Standard Change.
- 27¹ x 17¹ Reed std. change, taper att.
- 36¹ x 16¹ L. & S. Sel. Grd. Hd., q. c.
- 26¹ x 12¹ Pittsburgh q. c.
- 24¹ x 12¹ American Tool Wks. q. c.
- 30¹ x 14¹ Lodge & Shipley, q. c.
- 24¹ x 14¹ & 24¹ x 12¹ Cisco, g. h., q. c., new.
- 24¹ x 10¹ G. & K. q. c.
- 24¹ x 10¹ Boye & Emisses q. c. Lathe.
- 22¹ x 12¹ Whitcomb-Blaisdell semi-q. chs.
- 20¹ x 11¹ Chard q. c. taper attach.
- 20¹ x 10¹ LeBlond q. c. taper att.
- 18¹ x 10¹ S.-B. & E. q. c. taper att.
- 18¹ x 10¹ American geared head, q. c.
- 20¹ x 8¹ Hendey g. h., q. c., t. a.
- 18¹ x 8¹ Monarch quick change.
- 18¹ x 8¹ LeBlond q. c. Lathe.
- 18¹ x 8¹ Boye & Emisses quick change.
- 18¹ x 8¹ L. & S. Sel. Grd. Hd., q. c.
- 16¹ x 8¹ Schumacher & Boye, q. c.

- 24¹ Cincinnati Bickford Upright.
- 24¹ Milwaukee Upright Drill.
- 22¹ W. F. & J. Barnes Upright, t. a.
- 21¹ Superior (Kokomo Hi-Speed) Upr.
- 22¹ W. F. & J. Barnes 4-spindle Gang.
- 22¹ 1/2¹ W. F. & John Barnes 4-spindle Gang.
- 6-spindle 21¹ Hoefer Gang.
- 3-spindle 22¹ Hoefer Gang Drill.
- 6-spindle Acme Horiz. Auto. Drill.
- Allen 2, 3 & 6-sp. b. b., No. 2 M. T.
- No. 314 Baker Bros. Hvy. Duty.
- No. 220 Baker 2-spindle, H. D.
- No. 17 Foote-Burke 3-spdl. hvy. duty.
- Sipp 3-sp., b. b., p. f., No. 2 M. T.
- Demco 3-sp., b. b., p. f., No. 2 M. T.
- Avey 2-sp. b. b., No. 2 Morse Taper.
- No. 2 Avey 6-sp. b. b., No. 2 M. T.
- Henry & Wright 2-sp. b. b., No. 2 M. T.
- No. 2-B Edlund 4-sp., b. b., No. 2 M. T.
- No. 12 Pratt & W. Multiple, 8 spindle.
- No. 11 P. & W. Mult., equipped with 4-sp.
- No. 0 Fox Multiple, 4-spindles.
- No. 3 Bausch Mult., equip. 19-spds.
- No. 26 Fox Mult. Drill & Tapper, late.
- Nos. 30 & 12 Natco Mult., late type.
- No. 37 Natco Multiple, 14-spindles.

- 16¹ x 6¹, 16¹ x 6¹ x 14¹ x 6¹ Lodge & Shipley q. c. Lathes, late types.
- 16¹ x 6¹ L. & S. s. g. h., q. c., t. a.
- 16¹ x 6¹ L. & S. Sel. Grd. Hd., q. c.
- 16¹ x 6¹ Cincinnati quick change.
- 16¹ x 6¹ Lodge & Shipley q. c.
- 16¹ x 6¹ Monarch quick change Lathe.
- 16¹ x 6¹ & 14¹ x 6¹ Amer. h. d., q. c., late.
- 12¹ x 6¹ LeBlond quick change.
- 14¹ x 6¹ Reed-Prentice, grd. hd., q. c.
- 21¹ x 10¹ LeBlond Rapid Production Mfg. with 4-way turret tool post.
- 17¹ x 6¹ LeBlond Rap. Prod. Mfg.
- 9¹ x 14¹ Porter-Cable Mfg., late.
- Nos. 6 & 9 LeBlond Multi-Cut Lathes.
- 3 1/4¹ x 40¹ Greenlee Flat Tur., bar equip.
- 2 1/4¹ x 24¹ Acme Flat Turret, chuck.
- 3¹ x 36¹ J. & L. Turret, chuck equip.
- 3¹ x 36¹ J. & L. dbl. sp. Turret, late.
- 34¹ & 24¹ Gisholt Turret, t. a., late type.
- 21¹ Gisholt Turret, taper att., late type.
- Nos. 2 & 4 Miholland Turret.
- Nos. 2, 4, 6 Wamer & S. Turret.

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18⁸ Gleason Bevel Gear Generators.
No. 5-A Lees-Bradner Gear Hobber.
No. 3 Barber-Colman Gear Hobbers.
No. 12 Barber-Colman, pwr. esp. trav.
18-H Gould & E., Hi-Duty Gr. Hob.
No. 34 B. & S. Gear Hobbers, late type.
Nos. 6 & 61 Fellows Gear Shapers.
No. 5-48⁸ B. & S. Auto Spur Gr. Cut.
No. 4-48⁸ B. & S. Auto Spur Gr. Cut.
No. 3, 36⁸ & No. 3, 26⁸ B. & S. Auto.
No. 3-26⁸ Cinti. Auto. Spur Gr. Cut.
No. 2 Wilmarth & M. Auto. Surface.
8⁸ Heald Grinder & Surf., style 200.
No. 0 LaSalle Hand Feed Surface.
No. 22, 12⁸ Heald Rotary Surface.
No. 3 B. & S. Surface, planer type.
No. 3 Rivett Internal Grinder.
Nos. 70 & 75 Heald Internal Grinders.
No. 70 Heald Int., clutch in head.
No. 60 Heald Cyl., late type, complete.
Capitol Internal Grinder.
No. 4, 23⁸ & No. 8, 40⁸ Gard. Disc.

SHAPERS AND PLANERS

24⁸ & 20⁸ Kelly H. D., b. g. Crank.
25⁸ S. & M. Hvy. Duty, B. G. Crank.
24⁸ G. & E. H. D., B. G., Crank, late.
24⁸ Queen City H. D., B. G., Crank, late.
24⁸ Stockbridge H. D., B. G., Crank.
20⁸ Milwaukee H. D., B. G., Crank.
20⁸ Amer. H. D., B. G., Crank, S. P.
20⁸ Cinti. H. D., B. G., Crank, S. P.

MILLING MACHINES

No. 15 Garvin Vert. Spindle.
No. 3 Toledo Vertical, single pulley.
Becker Model "B" Vert. Continuous.
Becker Model "C" Vert. Continuous.
No. 1A Owens Univ., cone pul. compl.
Nos. 3 & 1 Kempsmith Univ., c. p. comp.
No. 4 Hendey Univ., single pulley, comp.
Nos. 3 & 2 B. & S. Universal, c. p.
Nos. 2 & 1½ LeBlond Universal, c. p.
Nos. 3 & 1 Hendey Universal, c. p.
No. 5 Cincinnati, H. P. Plain, rectangular
oversize, late type.
No. 4 Cinti. H. P. Pl., s. p., p. r. t.
No. 3 Hvy. Ohio Plain, c. p., p. r. t.
Nos. 3 & 1 Kempsmith Pl., cone pulley.
No. 3 Hendey Plain, cone pulley.
No. 3 Cincinnati Plain, cone p.

No. 10-18⁸ Besly Disc Grinder.
No. 120 Gardner Double Disc.
14⁸ P. & W. Vert., Surf., b. b. spindle.
No. 16-26⁸ Blanchard Vert. Surf., b. d.
12⁸ P. & W. Vert. Surf., rot. mag. chk.
Walker single stroke Vertical Surface,
10⁸ dia. magnetic chuck.
No. 120 Gardner Combination Disc.
Yankee Twist Drill, cap. to 2⁸ drills.
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6⁸x32⁸, 10⁸x24⁸ & 10⁸x36⁸ Norton Pl.
6⁸x18⁸ and 10⁸x52⁸ Landis Plain
Self Contained, late types.
No. 2 Cincinnati Univ. Tool & Cutter.
8⁸x30⁸ Modern Plain, self-contained.
No. 11 B. & S. Plain, self-cont., late.
No. 2-12⁸x36⁸ Cincinnati Pl. 95% new
No. 2 Landis Universal.
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Gisholt Universal Tool Grinder.
No. 3 B. & S. Univ. Cut. & Reamer,
P. & W. Thread Milling Cutter.

24⁸ & 16⁸ Barker h. d., b. g., Crank.
16⁸ Smith & Mills B. G. Crank.
16⁸ Hollingsworth H. D., B. G., Crank.
16⁸ Steptoe H. D., B. G., Crank.
15⁸ Pratt & Whitney Crank.
15⁸ Hendey frie. grd. Shaper.
42⁸x42x12⁸ Cincinnati Tr. Sp., 4 hds.
42⁸x42⁸x10⁸ G. A. Gray, 1 head.

Nos. 2½ & 2 LeBlond Pl., cone pulley.
No. 2 Cincinnati Plain, cone pulley.
No. 2H Brown & Sharpe pl., cone pulley.
No. 1½ B. & S. Plain, cone pulley.
No. 0½ Cincinnati Plain, cone pulley.
28⁸ Cincinnati Semi-Auto. Duplex.
28⁸ Cincinnati Semi-Auto. Face.
48⁸ Cinti. Auto. Duplex, late type.
24⁸ Cincinnati Automatic, late type.
24⁸ Cincinnati Automatic Duplex.
18⁸ Cincinnati Plain Mfg. Millen.
G. Soley & Edlund, Briggs, type, Mfg.
Hendey Duplex Milling Machine.
No. 6 Whitney Hand Miller.
No. 1 Bristol b. b. Hand Miller.
No. 3½ Fox Hand & Power Millen.
No. 2 Knight Milling and Drilling.

(Continued on next Page)

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(Continued from Preceding Pages)

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Air Compressor, 18x12x12 Worthington, dbl. steam drive, cap. 700 cu. ft. Air Comp. 8½" x 10" Worthington, b.d. Arbor Press, No. 4 Greenard Arbor Press, No. 55 Atlas Pwr., b. d. Automatics, Nos. 52, 53, 54, & 56, National Acme, 4-spindle. Automatic, No. 6A Potter & Johnson, late type, 19,000 serial. Automatics, 14" Fay, s. p. d., (2), Autos., 2½", 3½" Gridley s. s. Auto., ¾" Gridley 4-spindles. Bolt Cutters, 1" Acme Class "A". Bolt Thread, McHe., 1" Landis. Bolt Thread, Mch., 2½" Landis, I. s. Bok Thrd., 2" Acme dbl.-sp. Bolt Thread, Mch., 1½" Acme. Boring Mill, 51" Bullard vert., 2 hds. Bor. Mill, 42" Bullard New Era vert. Boring Mill, 42" Bausch vert., 2 hds., power rapid traverse. Boring mill, 37" Niles Vertical, 2 hds. Boring Mill, 72" Bick vert., 2 hd. Bor. Mill, 36" Bullard Vert. Rap Pro. Bor. Mill, 30" Gisholt vert., turret hd. Boring Mill, 3" Barrett Hor., 3" dia. bar Boring mill, 3" Lambert Hor. s. p. Boring Mill, No. 3-A Univ. Hor. 3" bar. Boring Mill, No. 1 Cleve. Hor. 2½" bar. Broach, Mch., Nos. 2 & 3B LaPointe. Broaching Machines, Nos. 2 & 3 J. N. LaPointe Double. Broaching Machines, Nos. 2 and 3. LaPointe (of Hudson). Chuck Mch., No. 23 New Britain Auto. Chuck, Mch., No. 22 New Britain auto. Chuck, Mch., No. 24 New Britain auto. Chuck, Mch., No. 53 N. B. Auto, d.e. Die Sinkers, Nos. 2 and 3 P. & W. Forging Press, 15 ton Lucas Pwr., b.d. Gun driller, No. 1 Pratt & W. 2-spdl. Hack Saw, 12" x 12" Racine H.S. Pwr. Hammer, 25 lb. Little Giant Trip, b. d. Hammers, 40 & 60 lb. Bradley c. h. Hammer, 50 lb. Bradley Up., b. d. Hammer, ¼" Schuster Riveting. Hammer, No. 3A Hi-Spd. Riveting. Hammers, No. 1-AA High Spd. Riv. Hammer, No. 2-A H. S. Riv., h. d. Hammer, No. 1½B High Spd. Rivet. Keyseater, No. 1 Baker Bros., cap. 1½". Polishing McHe., Blevener, type "A". Polish. Lathe, No. 3 Gardner, m. d. Press, No. 14 Peck-Stow & Wilcox O. B. I. Power, D. A. Press, No. 83-C Michigan Dbl. Crk. Geared Power, 42" between upr. Press, No. 51-S Ferracut Double Crank Power. Press, DNo. 2 Ferracut O. B. I. cam, double action. Press, D. D. No. 2 Ferracut O. B. I. cam, double action. Press, No. 54-A Toledo O. B. I. Pwr. Press, No. 19 Bliss O. B. I. Power. Press, No. 96 Niagara Geared Dbl. Action Cam Drawing. Profilers, No. 12 P. & W. 2-spindle. Profiler, No. 1 Garvin, 2-spindle. Punch & Shear, No. 2 L. & A., dbl. end. Punch & S., No. 3 Hilles & J., dbl. end. Rivet Spanner, No. 80A Grant. Rolls, 6' Rock River Power Bending, capacity ½" plate. Sprue Cutter, ¾" Tessemer. Straightening Presses, No. 1 Springfield, bench type. Tapping Mchs., Nos. 1 and 2 Garvin Automatic, back geared. Tapping Machines, Nos. 2X and 2 B. G. Garvin Automatic. Threader, No. 3 Loes-Bradner Internal. Thread Milling Machines, 6" x 14" & 6" x 80" Pratt & Whitney. Welder, Winfield Automatic Electric Spot, cap. 2 pieces of ¼". Welder, Winfield Electric Butt, cap. ½" rounds. Welder, Federal Electric Spot, capacity 2 pieces of ¼".

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- 3—Only, No. 1-D Brown & Sharpe Universal milling machine, equipped with dividing head for spiral cutting full set of change gears and arranged for cone drive.
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- 1—Only, No. 1 Cincinnati Universal Milling Machine, arranged for cone drive and complete with dividing heads and gears.
- 2—Only, No. 2 Brown & Sharpe Plain Milling Machines, arranged for cone drive and equipped with vise.
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- $2\frac{1}{2}'' - 3'' - 3\frac{1}{2}'' - 5''$ Acme steel bed, upsetters.
- $2\frac{1}{2}''$ Ajax iron bed upsetter geared, with side shear.
- 4-slide cotter pin making machines.
- $\frac{1}{2}''$ Waterbury-Farrel D. S. O. D. cold header.
- $\frac{1}{2}''$ Waterbury-Farrel D. S. O. D. cold header.
- No. 3 Manville S.S. S.D. cold header, cap. $\frac{3}{8}'' \times 3''$.
- No. 3 $\frac{1}{2}$ Waterbury-Farrel D. S. S. D. toggle type cold header, cap. $\frac{3}{8}'' \times \frac{3}{4}''$ to $\frac{1}{2}'' \times 3\frac{1}{2}''$.
- No. 5 Waterbury-Farrel S. S. S. D. cold header, cap. $\frac{3}{8}'' \times 2''$ to $\frac{3}{4}'' \times 4''$.
- $\frac{3}{8}''$ Waterbury-Farrel cold pressed nut machine.
- 6-spindle Acme semi-automatic nut tapper $\frac{1}{2}''$ capacity.
- $\frac{1}{2}'' \times 6''$ Waterbury-Farrel automatic bolt trimmer.
- $\frac{3}{8}''$ Economy automatic bolt pointers and threaders.
- $1\frac{1}{4}''$ Landis triple head bolt cutter, m. d.
- No. 1 Williams & White bulldozer.
- $6'' \times 18''$ Niagara washer.

Boring Mills—Horizontal

- $3\frac{1}{2}''$ bar P. & H. motor drive.
- $5\frac{1}{2}''$ bar Detrick & Harvey, floor type.
- $5\frac{1}{2}''$ bar Niles, floor type, belt drive.

Boring Mills—Vertical

- $4\frac{1}{2}''$ Baush, 2 heads, belt drive.
- $5\frac{1}{2}''$ Niles-Bement-Pond, single pulley drive.
- $7\frac{1}{2}''$ Sellers, rapid traverse, arranged motor drive.
- $14''$ and $16''$ Niles, two heads.
- $12''$ Betts, heavy duty, motor drive.
- $10'' - 16''$ Bement-Miles, with extension head.
- $10'' - 16''$ Niles, 2 heads, friction feed.
- $16'' - 24''$ Niles with central extension head.

Drills

- $4''$ Hammond sensitive radials with tapping attachment.
- $5''$ Bickford radial, gear box; $6''$ Pond radial, belt drive.
- $6''$ American triple purpose radial.
- $22''$ Barnes, sliding head, back geared.
- $23''$ Rockford, back-gearred, geared feed.
- $24''$ Kokomo, sliding head, back geared.
- $24''$ Reed-Prentice, sliding head, back geared.
- $25''$ Silver, sliding head, back geared.
- 4-spindle Foote-Burt.
- 6-spindle Moline cylinder borer.
- No. 11 Natco 8-spindle multiple.
- No. 25 Foote-Burt heavy duty, $3''$ capacity.

Gear Cutters

- $45''$ Gould & Eberhardt gear cutter, arr. m. d.
- $72''$ Gould & Eberhardt gear cutter, arr. m. d.
- $60'' \times 20''$ Schuchardt & Schutte gear hobber, belt drive.

**CYRIL J. BATH & CO., E. 70th &
Cable Address**

Cleveland Stock

Grinders

- 10"x52" Landis, plain, self-contained.
- No. 2 Gardner, ball bearing disc, belt dr. 18".
- No. 2 Gardner, plain disc, belt drive. 18".
- No. 24. Gardner, disc grinder, motor drive, 52".

Hammers

- 100-lb. Bradley, horizontal helve.

Lathes

- 16"x6" Pratt & Whitney, tool room—T. A.
- 16"x8" Monarch, quick change gear, back geared.
- 17"x8" Sidney, quick change, double back geared.
- 36"x14" Schumacher & Boye, triple geared.

Milling Machines and Keyseaters

- Type B Briggs Lincoln millers, table 54"x11 1/2".
- 20"x7"x18" Oesterlein plain, belt drive.
- No. 0 Rockford, plain, table 30"x7 1/2".
- Type B Becker vertical, S. P. D.
- No. 2 Baker Bros. keyseater, 2" cap. automatic feed.

Planers and Shapers

- 42"x42"x16" Detrick & Harvey openside planer with rev. m. d.
- 48"x48"x16" Cincinnati, 4 heads.
- 96"x96"x16" Pond, 4 heads, belt drive.
- 24" Queen City Shapers.
- 20" Smith & Mills crank shaper.
- 36" Morton draw-cut shaper.
- 48" Morton draw-cut shaper, with 60° stroke.

Punches and Shears

- 48" throat Bement-Miles, arch. jaw, 1 1/4"x1".
- 2" Garrison steel bed alligator shear.
- 14" Niagara circle shear.
- No. 4 Quickwork rotary shear, 5 1/2" cap., with 48" thrt. circle att.
- 10"x5" Hilles & Jones squaring shear.

Slotters

- 20" Bement crank, cone drive.
- 36" Bement crank, cone drive.
- 48" Niles-Bement-Pond, motor drive.

Turret Lathes and Screw Machines

- No. 1-B Foster, universal, geared head.
- 3"x36" Jones & Lamson, geared head.
- 18" Libby turret lathe, geared head.
- 24" Gisholt, cone drive & motor drive.

MISCELLANEOUS

- AJAX reclaiming rolls.
- 400-ton Niles wheel press, 96".
- Nos. 1 & 2 Buffalo Forge blowers.
- 36"x20" Allen riveter, 3/4" cap.
- 15-ton 51'10" span Niles crane.
- 16"x11/16" Hilles & Jones bending rolls.
- No. 5 Consolidated inclinable punch press, 2 1/2" stroke.
- 4" stroke Excelsior straight side press.

**Machinery Av., N. E., Cleveland, O.
ATHCO—Cleveland**

Re MANUFACTURED Quality Ma - (ORIGINATED BY US) - MACHINE TOOLS

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OUR GUARANTEE



This is only a partial list. Write for price on any tool you need, whether listed below or not.

Lathes

- 1-66" x 21' Putnam.
- 1-66" x 16' Lodge & Shipley.
- 1-45" x 24' Pond.
- 1-42" x 50' American Grd. Hd.
- 1-42" x 26' American Grd. Hd.
- 1-36" x 71' American Grd. Hd.
- 1-27" x 14' Reed-Prentice Grd. Hd.
- 5-26" x 16' Niles-Bement-Pond.
- 10-26" x 16' Bridgeford.
- 5-26" x 14' Niles-Bement-Pond.
- 5-26" x 12' Bridgeford.
- 10-26" x 10' Niles-Bement-Pond.
- 15-26" x 10' Whitcomb-Blaisdell.
- 44-26" x 10' Bridgeford.
- 9-25" x 12' LeBlond.
- 1-24" x 10' American Grd. Hd.
- 5-20" x 22" x 16' American.
- 1-20" x 12' L. & S. Sel. Grd. Hd.
- 6-20-22" x 8' American.
- 1-19" x 12' LeBlond Grd. Hd.
- 4-18" x 8' L. & S. Sel. Grd. Hd.
- 1-18" x 8' Lodge & Shipley.
- 1-18" x 8' Hendey.
- 1-14" x 8' Pratt & Whitney.
- 1-18" x 10' Sundstrand Mfg.
- 2-4" x 60" Loswing.
- 5-34" Fitchburg Loswing.

Auto. Screw Machines

- 7-No. 6-A Potter & Johnston.
- 2-No. 5-A Potter & Johnston.
- 1-1" x 5" New Britain.

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7660

HILL, CLARKE & CO. OF

Radial Drills

- 1-4' Western Heavy.
- 1-4' Bickford.

Turret Lathes

- 10-24" Steinle; 4-24" Gisholt, M.
- 3-21" Gisholt. 1-No. 2-B Foster.
- 1-No. 7 Foster, Geared Head.
- 1-No. 3-A Warner & Swasey.
- 2-No. 3 Cincinnati-Acme Univ.
- 7-2-spindle Jones & Lamson.
- 1-18" Acme.
- 3-16" Cincinnati-Acme-Fox.

Vertical Boring Mills

- 1-10' Niles; 1-72" Niles.
- 1-96" Betts.
- 1-72" Cincinnati. 1-72" Bickford.
- 1-61" Baush. 1-51" Baush.
- 1-54" Bullard. 1-51" Bullard.
- 2-48" Colburn; 1-42" Colburn.
- 2-42" Gisholt. 1-42" King.
- 1-38" Bullard, Rapid Production.
- 2-36" Gisholt. 2-32" King.
- 1-30" Gisholt. 1-30" Flather.
- 2-24" Bullard New Era.

Horizontal Boring Machine

- 1-No. 12 P. & H. 1-4" bar Gisholt.
- 4-No. 1 Barrett. 2-Rock'd 2" bar.

Shapers.

- 1-20" Columbia, M. D.
- 1-No. 16 Ohio. 1-16" Columbia.
- 1-16" Gould & Eberhardt, M. D.

MACHINES FOR IMMEDIATE DELIVERY

YOUR MONEY BACK IF YOU RETURN A MACHINE
WITHIN THIRTY DAYS. NO EXCUSES NECESSARY.

Below, a small section of our stock



DRILL PRESSES

- 2—No. D-31 Fox.
- 1—No. 4 4-spindle Foote-Burt.
- 1—6-spindle H. & W.
- 1—4-spindle H. & W.
- 1—2-spindle H. & W.
- 1—2-spindle Sipp.
- 1—22" Barnes, Self Oiling.
- 2—4-spindle Allen.

GEAR CUTTERS AND HOBBERS

- 1—No. 5 60" Brown & Sharpe.
- 1—36" x14" G. & E.
- 4—No. 3-26" Brown & Sharpe.
- 4—No. 12 Barber-Colman.
- 5—No. 6 Fellows. 1—18" Gleason.

MILLING MACHINES

- 1—No. 4 Cincinnati Universal.
- 1—No. 4-B Brown & Sharpe.
- 2—No. 3 Brown & Sharpe.
- 1—No. 21 Brown & Sharpe.
- 1—No. 24 Brown & Sharpe.
- 1—No. 120—Ohio.
- 1—No. 0 Brown & Sharpe.
- 1—No. 0 Rockford.
- 1—No. 1 Kempsmith.
- 2—No. 25 Becker.
- 2—No. 2-V Brown & Sharpe.
- 2—No. 1½ Garvin Duplex.
- 4—Type B Briggs.

VERTICAL MILLERS

- 2—No. 6 Becker.
- 1—No. 4 Cincinnati.
- 1—No. 3 Becker.
- 2—No. 2 Cincinnati.
- 1—No. 2 Brown & Sharpe.
- 1—No. 5 Becker.

PLANERS

- 1—72" x84" x12" Gray.
- 1—60" x48" x12" N. B. P.
- 1—48" x48" x10" Gray.
- 1—48" x48" x16" Niles-Bement-Pond.
- 3—36" x36" x18" Cincinnati.
- 2—36" x36" x8" Ohio.
- 1—36" x30" x20" Whitcomb-Blaisdell.
- 1—26" x26" x10" Gray.
- 2—24" x24" x6" Gray.

PRESSES.

- 1—No. 54 Bliss. 1—No. 59 Toledo.
- 1—No. 10 Z. & H. Percussion.

GRINDERS

- 1—26—37½" x96" Norton Gap.
- 1—18" x96" Norton.
- 2—16" x50" Norton.
- 1—14" x72" Norton.
- 4—14" x50" Norton.
- 1—12" x120" Landis.
- 1—10" x120" Norton.
- 1—10" x72" Norton.
- 1—10" x52" Landis.
- 6—10" x50" Norton.
- 1—No. 14, 10" x18" B. & S.
- 4—10" x34" Norton.
- 2—10" x36" Norton.
- 3—No. 12 8x36" B. & S.
- 7—6" x32" Norton.
- 1—No. 60 Heald. 9—No. 70 Heald.
- 1—Bath Universal.

MISCELLANEOUS

- 1—No. 0 Mitts & Merrill Keyseater.
- 1—No. 6 B. & K. Duplex Pipe Mch.
- 1—15 ton Lucas Forging Press.
- 1—12" x12" Racine Hack Saw.
- 1—Oil Gear Forging Press.

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Machines of Quality

MACHINES OF THIS TYPE ARE HARD TO FIND

20"x12' American Geared Head Lathe with taper attachment.

36"x14' Lodge & Shipley Triple Geared Lathe.

36"x16' Lodge & Shipley Geared Head Lathe, light pattern.

No. 2 W. & S. Turret Lathe, power feed to turret.

2A W. & S. Tur. Lathe, arr. for bar & chucking.

36"x36"x20' Pond Planer, 2 rail heads and one side head.

60' Brown & Sharpe Spur Gear Cutter.

No. 255 Heald 12' Rotary Surface Grinder.

22' Pratt & Whitney Vertical Surface Grinder, 72" table, large magnetic chuck and 3 new wheels.

10"x36' Norton Plain Grinder.

10"x50' Norton Plain Grinder.

14' Pratt & Whitney Vertical Surface Grinder.

No. 4 16"x72' Cincinnati Universal Grinder.

4' Cincinnati Plain Radial.

6' Cincinnati Bickford Full Universal Radial.

No. 2 Baker Keyseater.

No. 2 Cincinnati High Power Milling Machine, single pulley drive, rapid power traverse.

No. 2 Cincinnati Vertical High Power Miller with rotary table, power feed to rotary table.

No. 3 Cincinnati High Power Miller s. p. d.

No. 4 Cincinnati Plain High Power Miller.

No. 3-B B & S. Heavy Plain Miller, s. p. d.

60' King Vertical Boring Mill.

20' Gould & Eberhardt Shaper, single pulley drive.

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Partial list herewith—

CENTERING MACHINES

Centering machines, single spindle Cadillac.

ENGINE LATHES

12"x6' Seneca Falls tool room.
16"x 8' Monarch, compound rest, standard pattern.
14"x 6' Porter, compound rest and taper attachment, l. c. g.
16"x8' Rockford, 3 step cone, d. b. g., c. r. and t. a., semi quick change.
18"x8' Boye & Emmes q. c. g., s. b. g.

16"x 8' Bradford, c. r., loose change gear.
18"x8' Cincinnati, q. c. g., taper, draw in.
16"x 8' Walcott, c. r., q. c. g.
18"x10' Walcott, 3 step cone, d. b. g., semi quick change.
20"x10' Walcott, 3 step, q. c. g.

TURRET LATHES AND SCREW MACHINES

No. 00 Brown & Sharpe auto.
1" Foster, plain head, a. c. and b. f.
No. 3 Foster g.f.h. turret screw mch., with p. f. carriage and turret.
No. 3, 18" Woods tilted turret.
1"x7" Millholland, p. h., a. c. & b. f.
No. 55 Nat'l Acme 4-spdl. auto.

12" W. & S., friction head.
No. 2 Warner & Swasey, p. h., a. c. and b. f.
No. 4 Warner & Swasey, g. f. h., a. c. b. f., power feed turret.
No. 6 Warner & Swasey friction head, auto chuck, h. f. t.

DRILLING MACHINES

29" Barnes Plain Lever Feed.
3" Western Gear Box, single pulley drive with t. a.
4" Mueller, gear box, sgl. pulley dr.
5" Americans, triple grd., 8-speed change, gr. box, sgl. pulley drive.
12-spindle Moline, cam fd., two tbd.
No. 22 Colburn, sgl. sp., hvy. duty, 14" cap., with solid spindle and flange for receiving multiple drill heads, new, (2).

No. 30 Natco, belt driven.
No. 40 Natco Straight Line Multiple Spindle Drill, 8-spindle head with two speeds in head.
No. 44 Colburn, sgl. sp. heavy duty, 24" cap., with solid sp. and flange for receiving multiple drill heads, new, (2).
No. 34 Demco high speed bench drill with C spindle, new.
Foote Burt 1-spindle heavy duty.

The Strong, Carlisle & Hammond Co.,

Hammond Company Guarantee Back of Every Machine Tool

Let us have your inquiries.

MILLING MACHINES

No. 6 Whitney hand, (2).
No. 3 Pratt & Whitney hand miller.
No. 1 Toledo hand millers, (2).
No. 0 Bickett, hand, bench type, (2).
No. 2 Cincinnati vertical, s. p. d.
No. 6 Becker vertical.

Becker 2-spindle, with rotary table.
Briggs Type "A" motor driven with
motor.
No. 3 Brown & Sharpe Plain, cone
drive, with taper nose spindle.

SHAPERS AND PLANERS

20" Hendey friction, (2).
16" Smith & Mills b. g., crank.
16" Smith & Mills plain, crank.
23" Smith & Mills Back Geared
Crank.
22" x 22" x 5' Putnam planers, (2).
33" x 38" x 10' Pond, 2 heads on rail.

26" x 30" x 6' Cleveland open side one
rail head, one side head, new.
48" x 60" x 16' Cleveland open side,
two heads.
28" x 28" x 8' Gray Planer, one head on
rail.

GRINDERS

30" x 34" Diamond Face Grinder,
belt driven.
No. 3 Diamond wet tool grinder with
drop apron, new.
No. 4 Diamond wet tool grinders
with drop apron, new.
No. 6-A Bryant internal.
Webster & Perks, h. a., b. b., double
spindle polishing lathes, cabinet
base (6).
No. 10-18" Besly disc grinder.

No. 3 Brown & Sharpe planer type
No. 11 Brown & Sharpe pl. grinders,
surface grinder.
No. 14-48" B. & S. plain, (2).
No. 3 Modern universal.
Gisholt universal form tool grinder.
Type "DE" Hissey-Wolf internal.
C3A Grand Rapids duplex drill
grinders with wet att., new.
Landis Internal, with countershaft.

MISCELLANEOUS

Arbor press, No. 28 Atlas.
Boring and Turning Mill, 52" Bullard
Vertical 2 swivel heads, motor dr.
Boring Mill, 34" Bullard Rapid Pro-
duction with side head, belt driven.
Hand brake, 5' Dreis & Krump.
Pipe machine, No. 300 Oster, 1" to 2".

Pipe machine, 8" Jarecki, No. 88.
Power Press, Max Arms S. S. Plain,
5" stroke, on inclined legs.
Power press, P-4 Ferracute Plain.
Slotted, No. 3 Garvin Duplex.
No. 3 Rockford plain.

Cleveland, Ohio; Detroit, Michigan

High Grade Machine Tools

Boring Mills

1—Bullard 42" Vertical.

Broaches

1—LaPointe No. 4 Hydr. D.M.D.
3—LaPointe Nos. 1-2 and 3.

Drills

3—Avey Nos. 11½ H. S. S. S.
4—Sipp 16" High Speed S. S.
2—Acme 6D Semi-Auto. Drilling.
1—American 26" S. S.
7—Aurora 21-24" S. S.
2—Barnes Camel back 24".
6—Cincinnati 21-26" S. S.
3—Superior 20"-26" S. S.

Drills—Multiple

1—Avey No. 1½ 2-sp. High Speed
1—Kingsbury 4-sp. Horiz. D.M.D.
1—Rockford, 4-spindles.
2—G. & E. 2-spindle High Speed.

Gear Shapers

8—Fellows No. 6 and 36".

Grinders

2—Diamond Auto-Sur. Grinder.
19—Norton Pl. Ext. 6x32, 10x24,
10x36, 10x50, 10x72, 14x72.
13—Heald Int. Nos. 60-65-70-75.
1—Bely No. 14 Disc.
1—Bealy No. 6 Dbl. End. Auto.
1—Gardner Disc.
1—W. & M. No. 1 Sur. Grinder.
1—Brown & Sharpe Universal.
2—Rivett No. 205 Radial.
1—Rivett Univ. No. 6 Internal.
2—Landis No. 3 Universal.
1—B. & S. No. 11 Plain Ext.
3—Bryant Chuck. Nos. 6 & 15A.

Lathes—Engine—Miscellaneous

1—Hamilton, 16x6, B. G., Q. C.
5—Lodge & Shipley 16x6, 18x8,
20x10, 22x10, B. G., Q. C.
1—Sidney 20x10, B. G., Q. C.
2—LeBlond 17x12, 21x12, B. G.,
Q. C.
5—Greaves & Klusman 18x6,
18x8, 30x8, B. G., Q. C.
3—Chard 16x6&24x11 B. G., Q. C.
4—American 14x6, 16x6, 18x8
16x10½ B. G., Q. C.
1—L. & S. Duplex 12x24" Cr. Pin.

Lathes—Turret and Screw Mch's.

4—Foster No. 1-B—20" swing.
2—Potter & Johnson No. 6A.
2—Gisholt No. 2, D. M. D.
2—Gisholt No. H21.
1—Warren & Swasey No. 6.
1—Millholland 1" D. M. D.
2—Pratt & Whitney 20".
2—B. & O. No. 4.

Milling Machines—Vertical

2—Becker No. 5 and No. 6.
1—Knight No 1½.

Milling Machines—Horizontal

1—Milwaukee No. 3B Double
overarm, Vertical Head.
2—Milwaukee No. 2BS Dbl. over.
1—No. 2 Cincinnati Universal.
1—B. & S. No. 1½B, S. P. D.
2—Brown & S. No. 2B and 12.
1—Steptoe Hand with Vert. Att.

Milling Machines—Slab

1—Ingenol 30x30x10', 3 heads.

Planer

1—American 30x30x10', 3 heads.

Presses

1—Toledo No. 92½E.

Saws

1—Atkins Power No. 7.
1—Peerless 6x6.

Screw Machines—Automatic

1—New Britain No. 24 Mult. spdl.
4—Gridley ¾" 4-spindle.
1—Cleveland 2" S. S.
3—National Acme Nos. 53 and
Multiple spindle.

Shapers—Crank

1—American 16" Hi Duty.
2—Steptoe 16".
1—Lodge & Davis.

Tappers

1—Rickett No. ½ D Horiz.
2—Garvin Vertical.

Welding Outfits

1—Prest-O-Lite Type D. Portable.
1—Thompson Electric Type 101.
1—Gibbs Type 55 Spot.

Miscellaneous

1—Crescent Rip and Cross Cut saw
table and 5 H. P. motor.
1—190 H. P. Synchronous motor.
3—Generator Sets.

The Indianapolis Machinery & Supply Co.

1959 S. Meridian St.,

Indianapolis, Indiana

Some Attractive Machines

- 2—6"x32" Norton Grinders, serials 9200.
- 1—16"x96" Landis Grinder.
- 1—14"x72" Norton Grinder.
- 1—No. 70 Heald internal Grinder, 2100 ser.
- 6—No. 6 Whitney hand Millers.
- 1—No. 2X Garvin Automatic Tapper.
- 1—No. 119 Bliss cap Thread Roller.
- Several Clevelands, $\frac{1}{2}$ to 2", both A and B models. High serials.
- 1—1 $\frac{1}{4}$ " Gridley Multiple, serial 8167.
- 1—Sipp ball bearing Drill.
- 1—Henry & Wright, 15" overhang Drill.
- 1—Henry & Wright, 7" overhang Drill.
- 3—26" W. F. & J. Barnes back geared Drills.
- 1—28" W. F. & J. Barnes back geared Drills.
- 1—No. 4 Quint turret Drill.
- 1—No. 4 Bardons & Oliver Screw Machine.
- Several small hand Screw Machines, Garvin, Pratt & Whitney, Brown & Sharpe.
- 1—No. 7 Zeh & Hahneman percussion Screw Press 50 ton size, nearly new.
- 1—15" Dill Slotter, very fine condition.
- 1—3 $\frac{1}{2}$ ' Western Radial Drill, single pulley dr.
- 2—2 spindle Allen ball bearing Drills.
- 1—No. 19-C Bliss O. B. I. Press,
- 1—No. 4 R. & K. O. B. I. Press.

250 others, lathes, screw machines, grinders, drills, presses, punches and shears, etc.

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A. D. White Machinery Co.

108 N. Jefferson St.,

Chicago, Ill.

NEW 3 PHASE MOTORS CHEAP—FROM $\frac{1}{2}$ H. P. UP

LATHES

12" x 5' Cleveland, geared head.
14" x 6' Carroll-Jamieson, new, q. c.
14" x 6' Hamilton, grd. hd., motor dr.
14" x 6' Monarch, quick change.
14" x 6' Sebastian, grd. hd., m. d.
14" x 6' Worcester.
14" x 8' Sidney, double back geared.

16" x 8' Hamilton, quick change.
18" x 10' American, quick change.
20" x 10' Hamilton, rapid production.
20" x 10' Prentice, taper attachment.
24" x 24' Prentice, with raising block.
8x60" & 33x60" Fitchburg, Lo-Swing
South Bend, new, all sizes.

TURRET LATHES and

No. 52 National Acme automatic.
No. 53 National Acme automatic.
No. 54 National Acme automatic.
5" capacity Acme.
No. 6 Defiance, $\frac{1}{2}$ " capacity.

SCREW MACHINES

1/2" capacity Smurr & Kamen.
1/2" Milholland.
2x24 and 3x36 J. & L.
No. 1 Foster, 13/16" capacity, (2).

SHAPERS

14" Niles, traveling head.
14" Steptoe, crank.
16" Barker.

16" O. & S., b. grd., new, low price.
24" O. & S. back geared crank.

PRESSES

No. 10 and No. 15 Excelsior, foot.
Nos. 3-A & 5-A Willard inclinable.
Nos. 1, 14, 2, 24 Robinson, new.

No. 4 Federal o. b. i.
No. 8 Federal o. b. i.
Emco bench.

DRILLS and RADIALS

No. 1 Baush multiple.
Baush 3' radial.
Hilbert 3' radial.
22", 24", 26", 28" and 32", sliding hd.
32" Hoefer, sliding head.

6' Ceiling drill.
23" Kokomo high speed.
44" Stover.
Sipp high speed, single-spindle.
Hole Hog, No. 68-D, 7-spindle.

MILLING MACHINES

No. 14 American plain.
No. 2 Kempsmith plain.
No. 3 Kempsmith plain, new.
No. 4 LeBlond plain.
No. 25 Bilton.

No. 28 Becker plain, power feed.
No. 2 H Brown & Sharpe plain.
Oesterlein 24x7x18 plain.
Ingersoll 24" x 20" x 8' horizontal
motor drive.

GRINDERS

Nos. 1 & 78 W. & M. surface.
6" x 15" Fitchburg plain.
12" x 36" Cincinnati universal.
16" x 42" Landis universal.
36" and 66" Yates plate.

No. 60 Heald cylinder.
Schmitt cylinder grinder.
J B X, W. & M. tool and cutter.
No. 10 Besly 18" double disc.
No. 20 Bryant, chucking.

MISCELLANEOUS

Band saw, Clark, compound.
Band saw, Napier 10" x 10".
Blower, No. 6 Piqua, pressure.
Blower, positive pressure, Leiman.
Boring mill, Colburn No. 3, tur. hd.
Brake 10', Keene, 18 ga.
Brake, 12' Chicago Steel 18 gauge.
Broaching mchs., 1 and 3 LaPointe.
Compressors, 6x8, 8x8 and 9x8.
Gear cutter, No. 3-26 B. & S.
Gear cutter, No. 13 Brown & Sharpe.
Gear miller, Bilton No. 1.
Hammer, 150 lb. Standard drop.
Pipe machines, 2", 4" & 6".
Planer, 36" x 36" Gray, heavy duty.

Planer, 24" x 24" x 6".
Planer, 36" x 36" x 14" Gray, 2 heads.
Planer, 42" x 42" x 12" Gray, 2 heads.
Planer, 48" x 48" x 16" Cincinnati, 4 hd.
Punch & shear, $\frac{1}{2}$ x $\frac{1}{2}$ x 10" throat.
Riveting hammers, Nos. 1, 2, 3, 4-A
High Speed.
Sand blast, Boland.
Scale, 1500 lb. Toledo, dial type.
Shear, 60" Peck, Stow & W., 18 ga.
Shear, No. 362 Robinson.
Shear, No. 362 Niagara.
Shear, circular, Pettingell, 60" thrt.
Threading mch., W. & P. 2-spindle.
Washing machine, Blakeslee.

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OSBORNE & SEXTON
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COLUMBUS, OHIO**

Good Rebuilt Machines

—Guaranteed—

BOLT CUTTERS

- 1—Acme $\frac{1}{2}$ ", 2-spdl., with lead screw.
- 1—Acme $\frac{1}{2}$ ", 3-spdl., with lead screw.

BROACHES

- 3—Hudson LaPointe No. 1.
- 1—J. N. LaPointe No. 3, double spindle, belt drive.
- 1—J. N. LaPointe No. 3, double spindle, motor drive.

DRILLS

- 2—28" Aurora sliding head.
- 2—21" Cincinnati sliding head.
- 1—24" Kokomo sliding head.
- 1—21" Kokomo sliding head.
- 2—25" Snyder sliding head.
- 1—L. & G. single spindle, h. s., b. b.
- 1—2-sp. Henry & Wright h. s., b. b.
- 1—Allen 4-spindle, h. s., b. b.
- 1—Sipp 3-spindle, h. s., b. b.
- 1—Foote-Burt 14 $\frac{1}{2}$.
- 1—24" Carlton Radial.
- 1—Bausch 3-way multiple drill; one head mounted horizontally in the rear, $21\frac{1}{2}$ " x $17\frac{1}{2}$ " opening bored for 16 spindles; equipped with 9 1- $\frac{1}{2}$ " No. 1 M. T. spindles; R. H. horizontal head 32" wide 21" high opening. Bored for 34 spindles, equipped with 13 1- $\frac{1}{2}$ " spindles. L. H. Horizontal head opening 32" wide and 18" high; bored for 34 spindles, equipped with 12 1- $\frac{1}{2}$ " No. 2 M. T. spindles; 10 extra spindles and brackets with machine; arranged for motor drive.
- 1—Pratt & Whitney Gun Drill.
- 1—2-way Barnes.
- 1—2-way Rockford.

GRINDERS.

- 3—6x32 Norton plain cylindrical.
- 1—10x18 Norton plain cylindrical.
- 1—10x36 Norton plain cylindrical.
- 1—12x72 Landis pl., self contained, motor drive.
- 1—Bath universal.
- 2—Gisholt cutter grinders, motor dr.
- 1—No. 1 Morse Plain.
- 2—Oliver drill grinders, motor drive.
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DRILL PRESS—3-spindle Sigourney, $\frac{1}{2}$ " capacity.

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No. 1 Kempsmith plain, cone head.
No. 1½ Brown & Sharpe plain cone
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No. 2 B. & S. plain cone head.

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Cleveland automatics, 1", 1", 1",
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| | |
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- 1-No. 3 Cincinnati Plain Milling Machine.
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- 1-No. 2 Brown & Sharpe Universal Milling Machine.
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34"x28" Pond, triangular pattern.
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wire feed.
14"x9" Cincinnati-Acme, wire feed.
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48" Almond, sens. radial, post type.
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26" Aurora, sliding head.
24" Foote-Burt heavy duty.

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No. 3 Brown & Sharpe, plain, cone
type.
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No. 3 Becker-Brainard, new model,
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48"x37"x9' Sellers, 2 heads.
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30"x30"x8' American, 1 head.

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48" Bullard, 2 swivel heads.
42" Bullard, 2 swivel heads.
Boring mill, No. 1 Sellers hor. 2 $\frac{1}{2}$ " bar.
Boring mill, car wheel, 60" Niles.

Boring, drilling and milling ma-
chine, Bement-Miles horiz., 4 $\frac{1}{2}$ "
bar, 14" 6" bet. heads, with revolv-
ing table.

PIPE MACHINES

4" & 8" Eaton, Cole & Burnham.

MISCELLANEOUS

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Arbor press, No. 8 Greenerd, 36"
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Arbor press, 20 ton Weaver.
Electric hoists, 1-ton cap. (8).
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Hammers, 15, 25 & 40 lbs. Bradley
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Hammers, 50 lb. Little Giant.
Hammers, 60 lb. Bellefonte upright, 2.
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5" strokes, 28" bet. housings, auto.
roller feed, with cut-off attach.,
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Punch or gate shears, 72" Cleveland
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Riveter, air, 6" gap Allen, cap. 1 $\frac{1}{2}$ ".
Riveter, air, 6" gap, Allen, cap. 1 $\frac{1}{2}$ ".
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Saw and column facer, Q. M. & S.
No. 4-B universal, 31" blade.
Shear, 8' Ohl, No. 20 ga.
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D. & H. Horizontal Floor Borer 5" bar.

Gisholt 42", Betts 7 $\frac{1}{2}$ 10" Vertical.
No. 124 Buffalo Post.

14" Rockford, 20" Snyder, 24" Foote-Burt.
6" Bickford; 5" Prentice; 10" Bausch Radials.
2" Fosdick, 3" Bickford, t. a.

Moline 10-spindle, No. 5 Morse taper.

Bush Multiple Drill, 12-spindle.

14 $\frac{1}{2}$ x 6" Hendey, t. a.

18" x 8" Lodge & Shipley, c. c. g.

24" x 12" Rockford, taper alt.

26" x 16" Prentice, taper attachment.

36" x 18" Porter.

63 $\frac{1}{2}$ " x 36" 6" Centers Niles H. D.

18" x 12" Roll Turning.

MILLING MACHINES: Ingemoll Fixed Rail, 24" x 21" x 20" table.

Ingemoll Slab 30" x 30" x 12", m. d.

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Canedy-Otto, hand power, $\frac{1}{2}$ " x $\frac{1}{2}$ ".

No. 6 Long & Allstate S. E.

Royersford No. 3, 16" throat 1" x 1".

Wais & Ross 15" throat, $\frac{3}{4}$ " x $\frac{1}{2}$ ".

Cleveland "EF", 36" throat 1 $\frac{1}{4}$ " x 1".

Industrial Double End, $\frac{3}{4}$ " x $\frac{1}{2}$ ".

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Doelger-Kirsten No. 2 Alligator, high knife.

Marshalltown No. 10-P Throatless.

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Landis No. 5 Cylinder; Besly No. 3 Disc.

Cincinnati 10" x 48" Grinder.

Cincinnati 12" x 72" Plain Cylindrical Grinder.

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MISCELLANEOUS: Baling Machine with 40 h. p. motor.

Band Saw Metal, Wheels 18", cap. 6".

Brake, Chicago Hand, 72" x 1/16".

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Planers, Cincinnati 48" x 44" x 12".

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Planer, 48" x 48" x 16" D. & H. Openside.

Planer, 72" x 54" x 12" Niles-Bement-Pond.

Planer, Detrick & H. Openside, 96" x 72" x 26".

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Presses, No. 1—No. 3 V. & O.—O. B. I.

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Press, 50 ton Lourie Hydraulic.

Presses, Arbor, No. 3 $\frac{1}{2}$ Greenerd; No. 1 Atlas.

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Saws, Hunter 24" hi-speed, m. d.; 18" Higley Cold.

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Screw Mch., 2 $\frac{1}{4}$ " x 11" Acme; Meriden, 6 hole turret.

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Welder, Westinghouse Arc, with 10 h. p. str. compl.

Wire Straightener, Schuster $\frac{1}{8}$ ".

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36"x21' Johnson Engine Lathe.
36"x18' Fifield Engine Lathe.
27"x20' Lodge & S. 3 S. C. Q. C.
24"x16' Hendey Yoke Head, Q. C.
22"x18' American Geared Head,
S. P. D. Q. C.
22"x8' L. & S. Q. C. cone drive.
20"x8' Lodge & S. Grd. Hd., Q. C.
18"x8' Hendey, Yoke Head, Q. C.
16"x6' American, Grd. Hd., Q. C.
14"x8' Sebastian Grd. Hd., Q. C.
14"x6' Hendey, Yoke Head, Q. C.

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No. 70 Heald Grinder.
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10"x52" Landis, self contained, late type
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36" Whiton Auto. Bevel & Spur.
No. 1 Farwell Gear Hobber.
18" Schuchardt & Schutte Hobben.

Boring Mills

42" Bullard, Vertical, 2 heads.
96" Bickford, Vertical.
36" Bullard Rapid Production.
42" Gisholt, two heads, late type.
No. 1 Rockford, Horizontal 2" bar.

Milling Machines

No. 4 Brown & Sharpe, Plain.
No. 3 Cincinnati Univ., cone drive.
No. 3 Cincinnati, plain.
No. 3 Brown & Sharpe, Plain.
No. 14½" Becker Universal.
No. 28 Oesterlein, Plain.
No. 1½" Valley City, Plain.
No. 6 Whitney Hand Millers.

**48x48x16' Detrick & Harvey Openside
Planer, excellent condition....\$2,750.00**

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16x16x36" Pratt & Whitney Planer.
42"x36"x12" Cincinnati, 2 heads.
26"x26"x12" Whitcomb-B., 2 heads.
24"x24"x12" Chandler, 2 heads.
48"x48"x16" D. & H. Opens. 2 hds.

Radial and Upright Drills

5" Cincinnati-Bick., Gr. Box, S.P.D.
3" Carlton, Speedy-Sensitive, cone dr.
26" Cincinnati Upright, C. D.
26" Rockford, T. A., C. D.
26" Rockford Upright, C. D.
24" Hoefer Upright, C. D.
6-spindle Rockford 20" B. G. P. F.
2-spindle Barnes, late type.
20" Barnes Camel Back.

Shapers

16" Steptoe Crank.
16" Gould & Eberhardt Crank.
16" Smith & Mills Crank.

24" Gould & Eberhardt, Crank.

24" Hendey.

20" Steptoe B. G. Crank.

Miscellaneous

1" National Bolt Cutter, complete,
1½" Acme double spindle Stay Bolt
Cutter, with Landis Heads.
No. 2 Kane & Roach Multiple P. & S.
50 lb. Little Giant Hammer.
No. 2 Mitts & Merrill Keyseater.
No. 3½" Baker Keyseater.
½" Landis Double Spdl. Bolt Cutter.
No. 42 Toledo Press.
Whiting Punch & Shear, No. 8, 36"
throat, 1" thru 1".
Wickes Punch & Shear, 48" throat,
1¼" thru 1½".
No. 8 Long & A. Punch & Shear.
No. 1 Badger State Alligator Shear.
10" Berisch Power Squaring Shear,
14 gauge.

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| Boring Mills, 24" Bullard, prod. type. | |
| 42" Gisholt Vertical. | |
| 42" Bullard New Era. | |
| 96" Niles vert, 2 hds. | |
| Boring Bar, No. 0 D. & H., 3½" bar. | |
| Drills..... D-66 Moline, 4 sp. | |
| "Hole Hog. | |
| No. 3 Bausch, 19 sp. | |
| No. 30 Natco, 48 sp. | |
| No. 41 Natco. | |
| Radial, Cleveland wall. | |
| Radial, 3" March Sens. | |
| Radial, 3" Cinti-Bick. | |
| Radial 3" Mueller. | |
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| Grinders..... No. 1 W. & M., Univ. | |
| No. 1 B. & S., Universal. | |
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| 10"x50" Norton. | |
| 84" Diamond Face M.D. | |
| Pipe Mch., 6" Landis. | |
| Planers..... 16" Niles plate. | |
| 32"x32"x8" Gray. | |
| 36"x36"x12" Cleveland. | |
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| No. 21-B Blin, O. B. I. | |
| Geared. | |
| Nos. 3 & 4 American | |
| Can, O. B. I. | |
| Saw..... No. 12-B Higley Cold. | |
| Screw Mch., Nos. 5 and 6 Wood | |
| Tilted. | |
| No. 7 Foster, friction head. | |
| Shapers..... 24" G. & E., back geared. | |
| Shear..... 4', 12 ga. Loy & Nawrath, | |
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- 1-Sellers 72" vertical, 2 heads.
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- 1-Betts 16-24" extension vertical.
- 1-Cleveland 28" bar, horizontal.
- 1-Pawling & Harnischfeger 34" bar
- 1-Detrick & Harvey 4" bar, hor.
- 1-N-B-P 4" bar, duplex cont. hor.
- 1-Rockford No. 2 horizontal.

DRILLS—Multiple Spindle

- 16-Baush Nos. 1, 2, 3 and 4.
- 5-Detroit 5-spindle.

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- 2-Barnes 20" and 24" camel back.
- 1-Foote-Burke 4-spindle.
- 6-Henry & Wright 2, 3, 4, 6-spdl.
- 2-Pratt & Whitney No. 2 gun bri.
- 1-New Turner No. 3 vertical.

DRILLS—Radial

- 1-Cincinnati 3'.
- 3-Western 3' plain.
- 1-American 4' plain, trip. purpose.
- 1-Baush 6'.
- 2-Dreses 5', 6' plain.
- 1-Cincinnati Bickford 6' plain.
- 1-N-B-P 36" plain.
- 1-Cincinnati Bickford 6' universal.

GEAR CUTTERS

- 7-B. & S. 3x36, 3x36, 4x36.
- 1-Gould & Eberhardt 36".
- 3-B. & S. No. 6, 60" cap.
- 1-G. & E. No. 18-H.
- 1-Cincinnati 16" Gear Hobber.
- 3-Fellows Gear Grinders.
- 4-Gleason 6", 11", 18".
- 1-Gleason 24" bevel gear planer.
- 5-Fellows Nos. 6, 61, 65, 615.

GRINDERS

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- 9-Landis 6x18, 10x24, 10x36, 12x36, 12x36 plain.
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- 8-Cincinnati Nos. 2, 3, 3-S, 4 plain.
- 2-Garvin No. 13 $\frac{1}{2}$ plain.
- 1-Cincinnati No. 2 vert., cone dr.
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LATHES

- 6-Lodge & Shipley 18"x8' selective gear head, with taper att.
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- 1-Hendey 24"x12".
- 1-Bridgeford 42"x38"; grd. hd.
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Lathes of all sizes and types.

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- 14-Cleveland 4", 5", 6", 8", "A".
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- 4-Nat'l Acme Nos. 52, 54, 56, 515.
- 11-P. & J. No. 5-A, No. 6-A.

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- 6-Foster Nos. 2, 4, 6.
- 4-Greenlee 2 $\frac{1}{2}$ x26.
- 16-J. & L. 2 $\frac{1}{2}$ x24, 3x36.
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- 1-B. & S. No. 6.
- 1-Steinlee 24" Turret.

PLANERS

- 2-Putnam 26x26x8', 2 heads.
- 1-Gray 38x38x20', 3 heads.
- 1-Woodward & P. 36x36x16', 4 hds.
- 1-Detrick & Harvey 30"x10', single head, openside.

SHAPERS AND SLOTTERS

- 2-Gould & Eberhardt 20", 24".
- 2-Cincinnati 16", 20".
- 1-Dill 15-18" Slotter.
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- 1-Taylor & F., 4-spdl. adj. column.
- 1-Barr six-spindle, power feed.
- 1-5' American pl. radial, tr. geared.
- 1-6' Dreses plain radial, motor dr.
- 1-8' Mueller plain radial, cone dr.

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- No. 4 Long & A. sgl. end., 1 thru 1.

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- 24" Queen City Heavy Duty, B. G., Crank.
- 20" Steptoe B. G., Crank.
- 16" Steptoe B. G., Crank.
- 16" Ohio Plain, Crank.

Millers

- No. 1½ Valley City Plain.
- No. 1-B Brown & Sharpe Cone Dr.
- No. 1½ Cincinnati Universal.
- No. 2 Cincinnati Plain, 3 step, d.b.g.
- No. 3 B. & S. Plain, Cone Drive.
- No. 2 Becker Vertical.
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Lathe, 18"x6" Rahn-L., q. c. g., taper.
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q. c. g., taper.
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Pipe machine, 6" Oster belt.
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96⁸ Betts, Two swivel heads, Table 96⁸ dia., Motor Drive.
60⁸ Bullard, Two swivel heads, Single Pulley Drive.
42⁸ Bullard, Two swivel heads, Single Pulley Drive.
42⁸ King, Power Rapid Traverse, Two swivel heads, Motor Drive.

MILLING MACHINES

No. 5 Cincinnati High Power Pl. No. 2 Cincinnati Vertical.
No. 4 Cincinnati High Power Pl. No. 1 $\frac{1}{2}$ -B Milwaukee Vertical.

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5¹ American Triple Purpose. 6¹ Dreses Semi-Universal.
4¹ American Plain. 5¹ Niles-B.-P., Semi-Universal.
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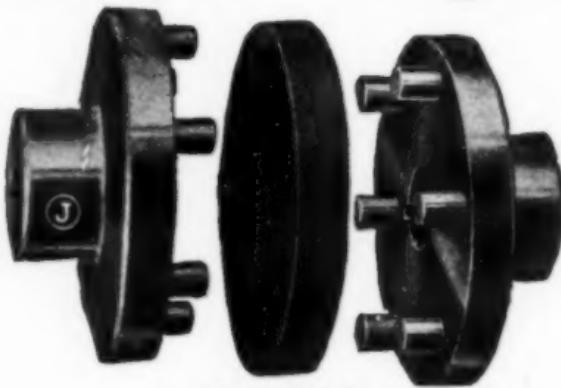
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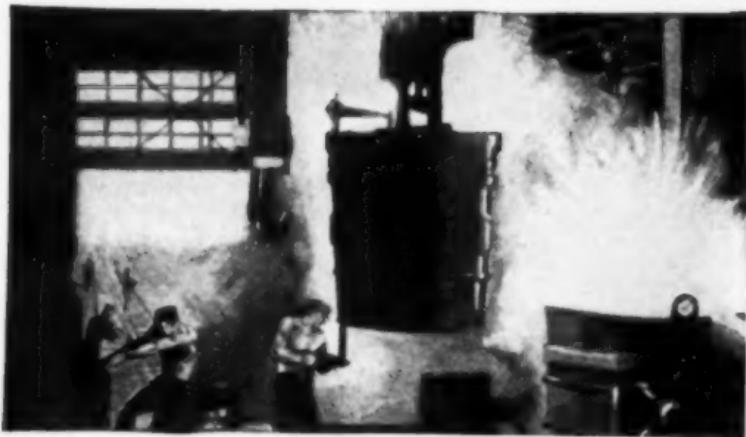
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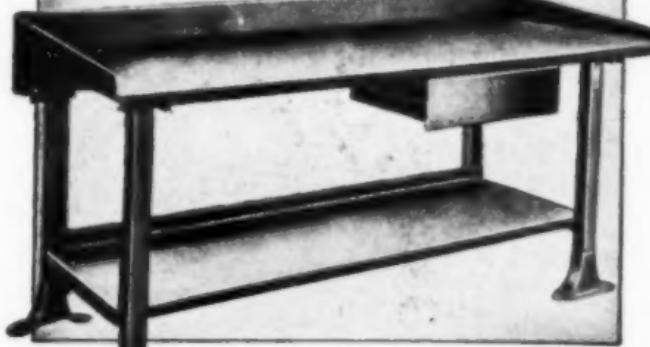
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